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APRIL 1917

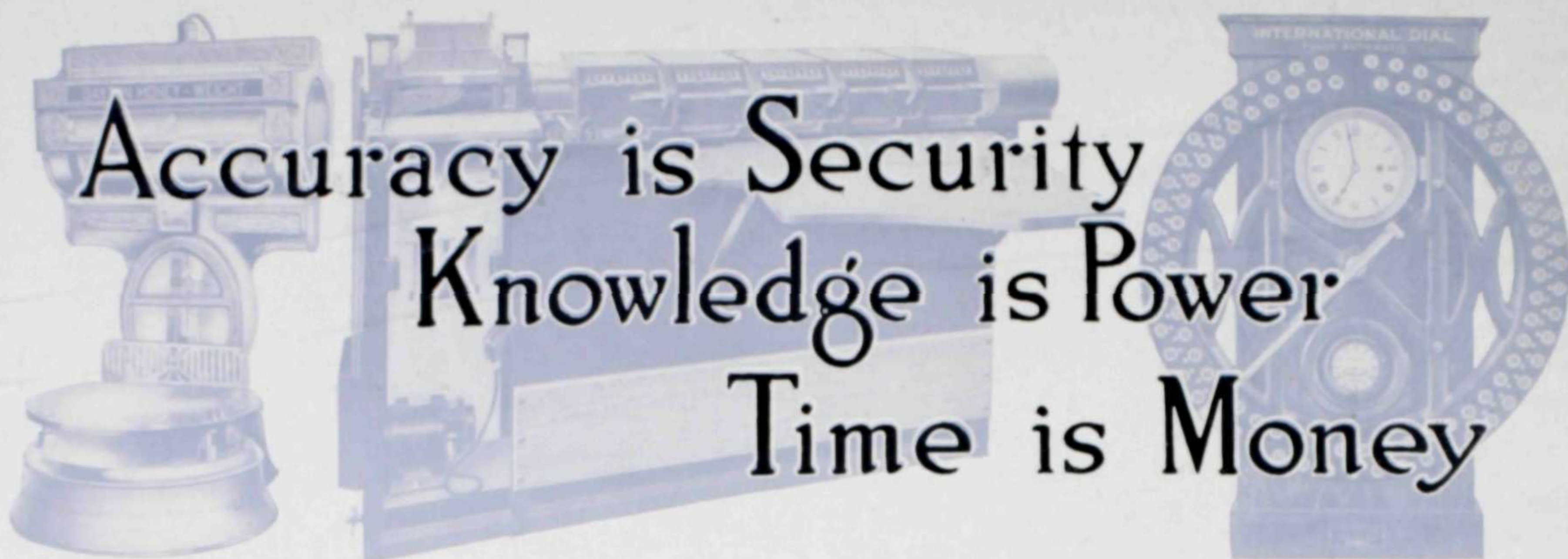
The Nation's Business



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MARCH 31st, 1917

ASSETS

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With Federal Reserve Bank and Exchanges for Clearing House - - - - -	13,387,353.28	
With Correspondents and Loans at Sharp Call - - -	31,981,661.24	
Eligible for re-discount with Federal Reserve Bank	23,512,512.55	
		\$84,221,986.83

Other Loans and Discounts

Due within 30 days - - -	\$ 5,960,687.11	
Due 30 to 90 days - - -	6,408,544.32	
Due 90 to 180 days - - -	15,131,727.58	
Due after 180 days - - -	987,396.36	
		28,488,355.37

Short-time Securities - - -	\$1,853,700.65	
United States and other bonds - - - - -	7,551,146.37	
		9,404,847.02

Customers' liability for acceptances by this bank and its correspondents (anticipated \$510,453.96)		5,194,906.07
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TOTAL \$127,310,095.29

LIABILITIES

Capital - - - - -	\$4,000,000.00
Surplus - - - - -	3,000,000.00
Profits - - - - -	1,232,154.75
Discount collected but not earned - - -	395,774.83
Circulating notes - - - - -	140,000.00

Acceptances by this bank

(less \$1,920,580.62 held

by bank) - - - - - \$2,836,319.38

Acceptances by corre-

spondents for this bank's

account - - - - - 948,460.03

3,784,779.41

Bonds borrowed - - - - - 1,085,000.00

Deposits - - - - - 113,672,386.30

TOTAL \$127,310,095.29

IRVING NATIONAL BANK

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Strictly a Commercial Bank

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Skimming the Cream

"The cream of trade in the United States - and of export trade as well - goes to a comparatively small number of large or efficient concerns."

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As your principal interest in an industry is in its commercial success whether you are the owner of its securities, the banker standing behind it or the executive directing its policies, you will welcome any proven plan that will make it more secure and more profitable.

The same industrial efficiency that is giving the "small number" of concerns such business prestige can be yours; the same control of production; the same intimate knowledge and accurate measure of results in all departments. Your plant and theirs can be on the same industrial basis.

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Leading Articles in this Issue

"..... All the Resources of the Country"	<i>Editorial</i>	5
The Epic of Wool	<i>Anselm Chomel</i>	7
Angels of Aviation	<i>William Salisbury</i>	12
While Machines Weave Snares for U-Boats—		16
Monthly Survey of The Nation's Business . <i>Archer Wall Douglas</i>		17
(With colored map)		
Argentina Organizes a National Chamber of Commerce		18
What the Business Man Saw in the Back Yard . . <i>W. F. French</i>		19
Organized Business Takes a Trench	<i>Anton Charles</i>	22
The Trade Route. <i>Verse</i>	<i>Charles L. Edson</i>	24
Decorations by R. L. Lambdin		
That Way Madness Lies	<i>Bristow Adams</i>	25
Arming and Equipping the Dollar	<i>Hamilton Harper</i>	31
Decorations by Charles E. Howell		
Here's What Coulby Discovered	<i>James B. Morrow</i>	34
Concerning Tobacco	<i>James M. Binkley</i>	38
Illustrations by R. L. Lambdin		
Commerce in the Month's News		42

Whence Come the Sinews of War
 Dutch and Swiss Strong Boxes
 Old King Coal a War Lord
 Recruiting a Nation's Automobiles
 You and I in Foreign Trade
 Demanding More Oil from Mother Earth
 Loading Ships a Fine Art
 Only One Lump, Please
 Custom Duties Apples of Discord
 War-time Protection for India's Cotton
 Russian Forests for New Europe
 Railways Ask for Rate Increase
 They Tax Your Job in Chile
 Reindeer on Our Bill of Fare
 The Sea's High Court Busy
 The World Drinks More Tea
 The World Looks for Paper Pulp

The Public Service of Transportation		46
An analysis of the Adamson Decision		

Entered as second-class matter February 18, 1913, at the Postoffice at Washington, D. C., under act of March 3, 1879



Persian Cities Died

when the Portuguese discovered a water route by which India's wealth could be brought to Europe at a lower cost than by caravan.

FREIGHT rates still are the life—or death—of a town. The realization of this fact has caused the organization of Traffic Bureaus by commercial organizations throughout the country. They collect and compile information on all tariffs, routings, steamer sailings, laws and decisions affecting transportation.

YOUR city may be languishing from this very cause. Last July the Organization Service Bureau of the Chamber of Commerce of the United States began a painstaking investigation of the subject. The result has been incorporated in a terse pamphlet that describes the operation of Traffic Bureaus in scores of American cities.

IF you are starting such a bureau, this information is indispensable; if you already have one the booklet will give you tips from the other fellow. Write us and this pamphlet will be sent to you.

OTHER maladies that are troubling commercial organizations have also been diagnosed. Any information will be gladly furnished by

THE ORGANIZATION SERVICE BUREAU
OF THE CHAMBER OF COMMERCE
OF THE UNITED STATES RIGGS
BUILDING, WASHINGTON, D. C.





*Newton Boulevard, Newton, Mass.
Treated with "Tarvia-A" in 1906*

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ELEVEN years ago this famous boulevard, five miles long and sixty feet wide, received a single surface treatment with "Tarvia-A."

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As a result, during the past eleven years the maintenance cost has been less than 2c per yard per year including all surface cleaning and work of every kind done on the roadway to keep it in a parklike condition. The road is the most important automobile thoroughfare to the west of Boston and carries a tremendous traffic.

During all this time the surface of the boulevard has been in splendid shape—firm, waterproof and free from dust, mud and frost. It is a good road to-day.

This is the kind of service Tarvia roads give. Do you wonder that road authorities prefer them and that taxpayers endorse that preference. There are hundreds of miles of Tarvia roads in the neighborhood of Newton alone. Three grades of Tarvia are made, to suit varying road conditions:

"Tarvia-X" is a dense, viscid coal-tar preparation, which is applied hot. It has great binding power. It encloses the stone in a tough matrix and makes the road dustless and automobile-proof. It is used for constructing new roads.

"Tarvia-A," applied hot, is for protecting macadam and concrete roads from heavy traffic and making them dustless and proof against water and attrition.

"Tarvia-B" is applied cold. It enters the road crust and cements it together, preserving the road surface and preventing dust.

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Special Service Department

In order to bring the facts before taxpayers as well as road authorities, The Barrett Company has organized a Special Service Department, which keeps up to the minute on all road problems. If you will write to the nearest office regarding road conditions or problems in your vicinity the matter will have the prompt attention of experienced engineers. This service is free for the asking.

If you want *better roads and lower taxes*, this Department can greatly assist you.

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The Nation's Business

VOLUME 5, NUMBER 4

A Magazine for



Business Men

WASHINGTON, APRIL, 1917

"—ALL THE RESOURCES OF THE COUNTRY"

JOINT RESOLUTIONS of Congress embody some of the most momentous actions of the National Government. They amend the Constitution, abrogate treaties, declare war.

On the evening of April 2 the President asked a joint resolution declaring war. There was a bit of pomp and ceremony, such as befits a democracy. "At 8 o'clock and 37 minutes p. m." run the records of the House, "the President of the United States escorted by the committee of Senators and Representatives, entered the Hall of the House and stood at the Clerk's desk amid prolonged applause."

When the President had made his recommendation and withdrawn, thirty-three minutes later, Senate Joint Resolution Number One was the first business of the Senate. It was reported by the Committee on Foreign Resolutions on April 3, passed the Senate on April 4, with 86 Senators voting in the affirmative, and was passed by the House on the morning of April 6, 373-50.

YEAR BY YEAR war has become less a combat between bodies of men. Instead of a mounting of barbed steeds it has become a strife of man-power at home, of mechanical ingenuity, and materials in industry.

The Spanish-American conflict has been called a "peaceful" war. Our new war is peaceful, too; for whatever the violence of its armed shocks, the power that will overwhelm, that will bring victory, and that in the terms of peace will obtain real guaranty for our rights in the future is the strength of the material development we have attained in the pursuits of peace. The declaration of war itself proclaimed the character of modern war; it not only directed the employment of the entire naval and military forces of the United States but it pledged *all of the resources of the country*.

No nation ever went forth to war defying aggression with such abundant resources of industry as we. Not that our industries are on a war basis. Latest figures show only 16 plants in the United States making aeroplanes and their parts, and these with only half a million dollars in capital. But for constructing aeroplanes and many other instrumentalities of war which we may at the moment lack we possess the materials; we need only determination to set to work.

THE METALS at our disposal depend upon our facilities for reducing ores. Last year the United States produced about 42,000,000 tons of steel, or more than half the amount made around the world, and new plants constructed during the year were so capacious as to account for four million tons of the total. Such equipment for producing steel, and for enlarging production by ten per cent and more a year, should meet every call of war and of industry. Our steel-making companies will apparently supply our government's war needs at half the market price.

Copper, too, we produce to the capacity of our refineries. We turned out around 2,300,000,000 pounds in 1916, and the total capacity of our plants by July 1 will be over 3,000,000,000 pounds a year, or nearly twice the amount of copper we need at home. During the twelve months that began April 1 the largest copper companies have undertaken to provide the Government with 45,500,000 pounds of copper,—an amount which is expected to meet the needs of army and navy for twelve months and yet is scarcely one-fiftieth of the new copper we shall have from our mines during the year. Our copper smelters, too, accept a price below the market,—by some \$7,000,000

for the lot. They agreed to 16.67 cents a pound, which is slightly over the ten-year average and will give each company a profit over its costs.

In zinc, too, our resources far outrun our own consumption. In 1916 our production reached 658,000 short tons, and we apparently used in our own borders slightly less than 450,000 tons. In the year our facilities for making zinc were enlarged by one-third, and enlargement has been continuing.

The record for other metals is similar, even for tin. We formerly obtained our metallic tin from foreign smelters. An American smelter, using Bolivia ore,—we have to go abroad for our tin ore,—now makes about 7,000 tons a year, and by July 1 may be producing at a rate of 18,000 tons.

UPON SUCH A WEALTH of resources ingenuity and invention obtain their great opportunity. Modern war presents a succession of problems to be met only with new devices of wit and skill. Cannon that will exceed the enemy's most powerful surprises in artillery, aeroplane motors that will give command of the air, "tanks", wire clippers, new battleship turrets and trench periscopes,—all these and other devices almost without number are inventive creations to meet sudden need.

In this field, Americans acknowledge no peers. Fifteen years ago, when European engine-builders ridiculed the idea of an engine which would develop twelve horsepower and weighs no more than 200 pounds, Americans created out of their fancy, skill, and materials an engine which weighed 124 pounds and developed 52 horsepower! That engine, constructed with the encouragement of our army officers, made the military aeroplane possible. In two years England alone seems to have spent \$200,000,000 for aircraft which we showed how to build and to equip with power.

This is but one example of the prodigality with which we have bestowed the achievements of our invention upon other countries. During the past fifty years, it is said upon authority, the people of the United States have accomplished two-thirds of all the revolutionary, epoch-making inventions of the world, ranging from the telephone and the incandescent lamp to high-speed steel.

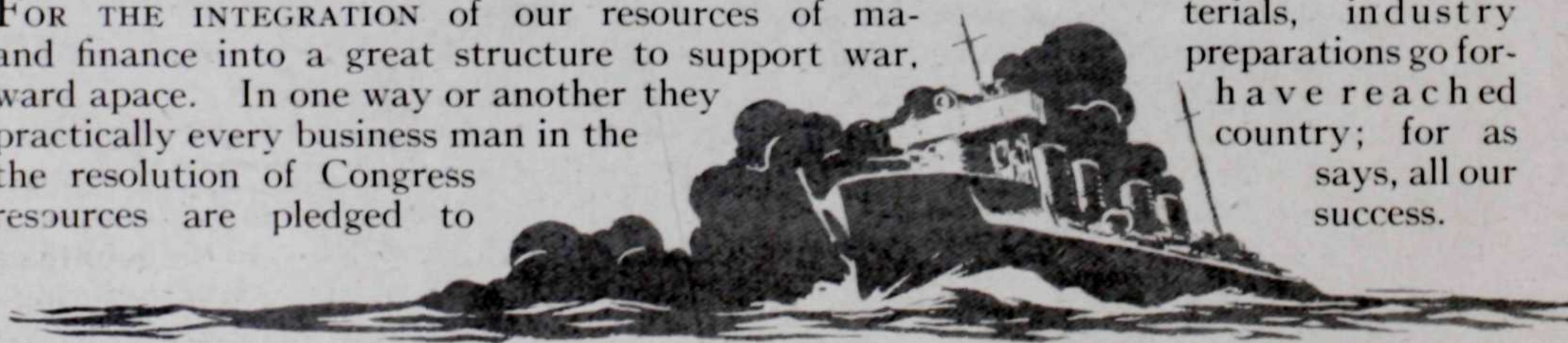
OUR BASES OF POWER do not stop with industrial materials and industrial skill. A failure of our fields to supply the nation with food is almost inconceivable. The real question is how far we can produce more than we need, that we may provide other nations. What we can do, if we use real endeavor, appears from statistics of waste. They show that by care merely in using seed we can save each year at least fifty million bushels of cereals and anywhere from fifty to a hundred million bushels of potatoes.

In clothing our lack may appear in wool and in leather; yet our sources of foreign supply during the past two years are not likely to be closed against us.

WAR AND PREPARATION for war require financial support on a scale which shows in the expenditures of European belligerents in two and a half years,—something like eighty billion dollars. In financial strength we have another foundation for great power. Ten years ago the British empire alone excelled the United States in wealth, and that by only one per cent. To-day our wealth is well upwards of two hundred billion dollars, and as a basis for our financial arrangements we begin with almost one billion dollars of gold in our twelve reserve banks, backed by the 16 billion of 7,600 local banks.

FOR THE INTEGRATION of our resources of man and finance into a great structure to support war, ward apace. In one way or another they practically every business man in the the resolution of Congress resources are pledged to

materials, industry preparations go for have reached country; for as says, all our success.



THE EPIC OF WOOL

The Sheep, Tamer of Savage Tribes, Prop of Civilization, Builder of a Continent, Who Has Run the Gamut of Neglect and Abuse from Palestine to Arizona, Now a Vanishing Race

By ANSELM CHOMEL

THE high history of the sheep and its wool I sing! Through perils of water, through perils of drought, through perils of wild beasts, in good season and bad, the sheep, wandering far from the cradle of his race, has shared with the colonizers of the world every adventurous quest of fortune. The romance he has woven is more thrilling than that of the golden fleece recovered for Achaia from fire-breathing bulls and sleepless dragons.

I.

"Involved his anxious life in endless cares."

THE PRODUCTION of wool in the United States is falling off at such a rapid rate that, unless the devastation of

our flocks should be arrested, it will be only a question of time until we shall be without wool for our clothing. The sheep has been shabbily treated by us. Now he is returning that treatment in kind, and persons with a taste for figures warn us that if we had to depend on the 50,000,000 sheep in the United States for our wool, each one of us would get a new suit of clothes only once in four years, or a new garment each year if we would be contented with one reaching from the waistband to the knees.

Our plight is worse than that of the Achaia after the flight of the golden ram. All of us are suffering from the wool shortage, and we will suffer more and more, because we refuse to grow the wool that would keep us in comfort and security. We ought to have 100,000,000 sheep of shearing age to provide the 600,000,000 pounds of wool required each year to make our clothing, one sheep for each person. For each Baby Bunting there should be a lamb to furnish the fleece to wrap the Baby Bunting in. We now import more than half the wool we use, the world supply is dwindling, and no one can say what the price six months from now will be.

Baby Bunting looks to the business man to provide his Teddy Bear suit and mittens, and that is why it is the nation's business to pay attention to our wool supply and that quickly, for the situation is critical. That is why there is a lesson in the world romance of sheep for the American merchant and manufacturer. They cannot have an adequate understanding of our markets without a knowledge of the industry in the countries whose product plays such an important part among our people.

Women are learning what the shortage means. The largest stores find it more difficult day by day to get

woolen piece-goods and dresses, and some makers of women's specialties who formerly produced nothing but all-wool garments now confine themselves to those made of cotton and wool. Our carpet manufacturers, who used to depend upon Asia, Turkey and Russia, see these markets closing to them as our own output of carpet wool reaches the vanishing point.

Thus it comes that

FOOD, Clothing, and Shelter are things we cannot do without. Inhabitants of the tropics may scrape along with little or no worry on the score of clothing and shelter, but not so with the white man of the temperate zones. For his very existence the three primitive requisites stand as immutable as four thousand years ago.

To supplies of food we have bent our energies, and we gaze with a feeling of satisfaction upon the broad reaches of our valleys and prairies. As for shelter, we have no lack of provision, and cheerily look upon the manifold ways in which we have added to the comforts we derive from our habitations.

But our clothing—the irreducible warmth of wool we must have, the wonderful fiber for which no science has yet devised a substitute—that is altogether a different story! Requiring half a billion and more pounds of wool a year, we have been content to grow but one-half, looking for great quantities and essential sorts to Australia, the South African Cape, and South America. Two of these sources have now been commandeered for other countries, precisely as they were intended. Willy nilly, we have to see about our wool!

Some persistent determination added to our resources and opportunities can make our supply of clothing as secure as our stocks of food and our shelter from the elements.
—The Editor.



we are forced to scour every nook and cranny of the earth, every out-of-the-way and barbarous spot, to get the wool we need for our clothing, carpets

and felt goods. Far-away Thibet, China and Persia, distracted Mexi-

co, New Zealand and Australia, storied Egypt, the Cape of Good Hope, Russia, Turkey and Argentina—all are laid under tribute.

But the foreign markets on which we have depended are beginning to fail us. Changing fashions here, expansion of agriculture there, decreasing flocks everywhere, make it harder and harder for us to get wool enough to clothe our people. Some of the difficulties in which we find ourselves are due to the war and will, in the main, pass away with it. The peril that threatens us, the peril that will not pass away with the war, has its roots in our shiftless disregard of things on which rest some of our most vital interests.

The problem touches every man, woman and child. It is not only an American problem but a world problem, not only a clothing problem but a food problem, not only a peace problem but a war problem. The output of wool, in order to clothe us, ought to keep pace with population, but in this case the world has lost its economic balance. Production not only fails to increase with

the children of men, but shows an alarming decrease. As man grows, his clothes supply shrinks, and he must piece it out more and more with shoddy. The world's wool clip in 1916 was 2,700,000,000 pounds—more than 156,000,000 pounds less than in the preceding year.

In some parts of the world, as the United States, there is a steady decline. Some countries seem to be at a standstill. Australia, on the other hand, gives promise of maintaining her position as a wool-producing country, unless more profitable use should be found for the land.

The dog has been the worst enemy of the sheep industry in our Eastern States. Flocks have been scattered and strewn in heaps of dead. In entire counties the industry has been practically wiped out, in others crippled, as in Washington County, Pennsylvania, once the banner wool-producing section of the world. According to the State department of agriculture, 5,808 sheep were killed in Pennsylvania in 1915. In Calhoun County, Michigan, 192 head were killed in one night by two dogs. Only a few of the sheep were bitten or maimed; they were simply run to death.

But the dog is not an insuperable obstacle. He can be shut out by a dog-proof fence, and one authority says that the farmer who spends \$250 for such a fence who otherwise would spend but \$150 will find it a good investment. The Eastern farmer who holds back because of the dog forgets that the Western sheep-raiser has his coyote.

"Progress is easy on the down-hill track,"—we have "progressed" from 56,084,000 sheep in 1909 to 49,956,000 in 1915 and from an output of 328,110,749 pounds of wool to 288,777,000 pounds—"but slow and laborious is the getting back." The authorities say we can get back, but they do not expect us to do it overnight. We must, of course, raise more sheep, but just as we get that thought well fixed in our minds, a new difficulty appears. Many Western lands—millions of acres—

hitherto open to sheep will be closed through the operation of the new law permitting homesteaders to take up grazing tracts of 640 acres which will be used, those familiar with the situation say, for cattle and not for sheep.

THE sheep below are a few of the 35,000,000 which are helping to make South Africa commercially. Sheep and cattle are of supreme importance in some of the colonies, like the Cape of Good Hope, which has 17,000,000 sheep. South Africa produces about 150,000,000 pounds of wool a year.

The sheep must come back into his own on the farms of the East and the Middle West. The Department of Agriculture says he will bring profit to the farmers with him. For one thing, sheep are the scavengers of the farm, and do the work at least as well as men with scythes and grubbing tools. Then, at the present prices of wool and mutton—and there is no reason to suppose that high prices will not prevail for a long time to come—

a substantial revenue can be derived from the sale of lambs and wool. There are cases on record to show that net returns as high as eight and nine dollars a head are being realized. The greatest fortunes of Australia, and some big ones in our Western States, rest on sheep. Millions of sheep could be raised on the farms east of the Mississippi that do not now know them, and the poorest land need not be given over to them either. Within fifty miles of London, for instance, farmers find it good business to devote productive ground to the raising of sheep.

A man who spent twenty years in the saddle rounding up his cattle on the plains confesses that sheep are a safer investment for the Westerner than steers. Cattle men "go broke," he says, sheep men never. Sheep can be kept constantly under their owner's eye and can be moved more easily than cattle to new grazing ground when the grass begins to play out. Winter often brings wholesale death to a herd of cattle. The old-time herder who is authority for these statements says that at the beginning of one winter his cattle numbered 7,500. In the spring, only 1,800 were left. More than 5,000 had starved to death.

Dramatic incidents mark the reawakened interest in



sheep raising in the United States. Growers of Western wool are stoutly refusing offers of forty cents and more a pound for unscoured wool, whereas, but a few years ago, they anxiously sought buyers at one-fourth that price. Lambs yet unborn are being contracted for at unheard-of figures. Associations are urging expansion of the industry. Manufacturers are praying for sheep, more sheep. The marauding dog has been doomed to death. It may be the turning point in the life of the sheep in the United States. Barely more than tolerated before, it is now sought for on every hand. Only a few days ago a Wyoming cattle man heard of a flock of 8,000 for sale in Montana and bought them "sight unseen". Within 48 hours he had sold them at a profit of \$15,000.

Our problem is not only to grow enough wool, but to grow all of the varieties which we need. The finer the wool, the poorer the mutton, and since the sheep must compete with the high price of beef, he has taken to growing coarser wool in the United States, satisfying, as well as one animal can, our demands for both food and clothing. For this reason, we have to trust more than ever to foreign markets, such as Australia, for the raw material for our finest cloth.

Curiously enough, it is the Navajo Indians who are pointing the way to our other wool growers in this regard. Owing to the improvement of their breeds by the Government, they bid fair to win a place as producers of the finest clothing wool. But while the Government helps the Indians with one hand, it pinches the carpet manufacturers with the other. The Navajos used to produce little but carpet wools, and one of these manufacturers has vainly appealed to the Secretary of the Interior to stay the progress of the Indians in order that his factory may not have to close its doors.

II.

"Exposed to wants and hurried into wars!"

HALF the world is fighting and it is only a part of the truth to say that it is fighting on its stomach. Soldiers must be clothed, and the part played by wool is brought out by the enormous quantities used by the nations at war. In the first fifteen months of the

conflict, England bought, for her own soldiers alone, more than 121,000,000 yards of piece-goods. Clearly Tommy Atkins has been well clad. These purchases, however, do not represent a proportionate increase in wool used, because civilized men must wear clothes, whether in the shape of uniform, business suit or tartan kilt. Nevertheless, war does immeasurably add to consumption and eat up the stores of years. To mention but one point: while wool fibre is ordinarily used again and again, and even in war uniforms are repaired or converted into shoddy, a very large proportion of army clothing is totally destroyed.

A TAILOR whose customer wanted English tweed explained that he had had to refuse a shipment of cloth from England on account of its poor war-time quality. Pulling a thread from some goods recently arrived, he showed that it could be broken as easily as an international treaty. He then demonstrated, by way of contrast, the strength of thread spun in the piping days of peace.

By reason of the war, we have gone from bad to worse. Curtailment of production in many of the leading wool countries, diminution of the accumulations of years, mounting prices, extraordinary consumption abroad, commandeering of supplies by warring nations, blockades and destruction of clothing on the battlefield are new factors that the war has added to an already critical problem.

Were we to join in the world quarrel, we should probably see our fast-diminishing output decrease at a still more rapid pace. There would be greater difficulty in getting wool abroad and Government purchases would be of such magnitude that consumption of raw wool for private purposes would, for a time, be out of the question. Stocks of merchandise would sink lower than ever. The wearer of wool does not like to contemplate the prices that would result.

It would be a bit of a job for us to put uniforms on the backs of a million soldiers. Multiply that million by a possible two, three, four or five. It would not be a task for a week, or a month or a year. Fourteen yards of cloth for a suit, overcoat and double blanket, not to





mention socks, underwear, gloves and shirts. At the mere hint of trouble, the woolen trade was upset. When we ceased diplomatic intercourse with Germany, mills began to withdraw their lines and many postponed their openings. Orders for small quantities only were accepted in many cases, and all-wool goods were sold at prices prevailing at time of shipment.

III.

"The causes and the crimes relate"

THE ETERNAL drama of man is the story of sheep. It is a human story. Dull and characterless—if we except the wild Rocky Mountain sheep and the magnificent *ovis poli* of the Asiatic highlands, named for Marco Polo—the sheep himself is neither an heroic nor a romantic figure. A dog may become a hero, but a sheep remains a sheep to the end of his days. "The 'orse he knows above a bit," according to Kipling, and "the elephant's a gentleman," but the sheep is only a leg o' mutton and a handful of wool. When all is said and done, however, civilized men can do without dogs, they can do without elephants and horses, but they can't well do without sheep.

Nerves tingle at the romantic story of humanity's struggles to maintain itself in comfort. But it is not all a pretty tale. Tragedy often bares her face. Sheep are one of the things for which men fight and struggle and intrigue, and that is why there is a story to weave around them.

A king pays a monarch's ransom that a few sheep may be smuggled out of their native country into his own. Shepherds watch by their flocks at night, enduring deadly silence and cold and solitude.

Men push out into the red country of Australia where a living area may be 20,000 acres, and settlers can see each other's homesteads only through the telescope. There they fight fire and flood and drought in turn. And perish—many of them. All because sheep thrive there. Beautiful as the sward of Old England, the country becomes another Sahara under the blighting drought. Grass withers away, trees are killed, birds drop dead. Drifting sands form hills that hide from sight pitiful groups of huddled dead sheep—and perhaps their shepherd. And when the drought is not on the land, grass may give out. There is a frantic rush, a rout, like that of a beaten and pursued army, to the next pasture.

"Here, you mighty American business man! You are supposed to see that I have warm clothes, yet my mama tells me that this suit is half shoddy, and the Baby Shop around the corner won't promise to have any at all for me next winter. What are you going to do about it?"

That pasture may be a thousand miles away. Sheep drop by hundreds in the mad scramble. Ten thousand of them died in one flock in 1907. Facing such obstacles, sheep growers have made Australia the greatest wool country in the world. Men as well as mutton and wool are being produced.

All of the romance and tragedy are not confined to far-away places. The United States has a story as deadly and dramatic as any. Cattle men and sheep men fought in the West, fought with fists and knives and bullets, with cunning and villainy, fought like men in the open and like assassins in the dark. There were "dead lines" beyond which a sheep man and his flocks dared not go. But sometimes one did dare. Maybe there was an open encounter, maybe a single shot in the night. The sheep man had been eliminated. The score, however, did not always stand like that, nor did the attack always come from the cattle men.

Possession of the coveted grazing lands and water holes meant life for the herds; dispossession, death. In the old days, before the government put out a restraining hand, a flock of sheep passed over a tract and grazing was at an end. It was like the boy's explanation of why lightning does not strike twice in the same place—there is nothing for it to strike the second time. Twenty thousand sheep might be driven onto a piece of verdant land and kept there until not a blade of grass was to be seen. Passing on, they left nothing behind but a dust-swept waste. That was what the cattle men objected to.

Those days are passed, sheep and cattle graze side by side, sheep men and cattle men no longer kill each other. Had not those days been shortened, no sheep would have been spared, but for the sake of humanity they were shortened. All traces of "dead lines" have, however, not been obliterated. There are still places where sheep men do not go.

IV.

*"Patsy O'Flynn had no breeches to wear,
He bought him a sheepskin and made him a pair."*

WHAT PATSY did, humanity has been doing for ages and ages, except that to-day we clip off the wool and leave the skin for the sheep to grow more on. The prehistoric man who discovered the value of sheep and taught them

to grow wool placed all future generations under a heavy debt. But he put zoologists to endless trouble by failing to chronicle the date of his revolutionary performance and the sheep's previous state of servitude or happy freedom. Scientists know nothing about the origin of sheep or when they began to grow wool. The sum of their knowledge is that when the first line of history was written, the sheep was already a domestic animal in Asia and Europe. In patriarchal times, men's riches were reckoned in part by the flocks they owned; stuffs made of wool, dyed in hues rich or somber, were men's clothing. Mythology had its fling, and ancient historians assure us with a straight face that to this god and that we owe various arts connected with the industry. Despite this antiquity, no remains that can be with certainty referred to the genus have been found, and authorities speak of the sheep as, geologically, a very modern animal. Whether it comes from an existing wild species, a crossing of several, or one now extinct, is matter of conjecture. The sheep resembles Topsy: it just "grewed up" and is woolly.

While the sheep keeps us in the dark as to his past, we know something of the effect of his association with man. He has wool and a long tail. Man taught him both of those tricks, because the wild ones have hair and short tails. When he can have his way about it, the sheep chooses mountain retreats, yet there is not a corner of the earth, forbidding and deadly as many of them are, to which man has not coaxed him.

Whether the world owes its fine wool of to-day to the

Romans or the Moors is a question for historians to split hairs over. One version, to which some high French authorities incline, is that the Moors brought the progenitors of the merino from Africa into Spain. Another has it that the Romans, who improved the wool-producing qualities of sheep, took their superior breed into the conquered country, and that soon Spanish wool was the finest in the Roman market. It remained the best in the world for nineteen centuries, and the Spanish merino is the foundation of the present fine-wooled breeds of all countries. Until the eighteenth century they were jealously guarded as the property of kings, nobles and the clergy, exportation was by royal permission, and it was about as hard to get one of them out of Spain as it has been in more modern times to get karakul sheep out of Persia. The story goes that George III induced the wife of the Spanish ambassador by the gift of a pair of cream-colored horses brought over from Hanover at a cost of 8,000 pounds, to get a few merinos smuggled out of Spain. The merino, however, has never flourished in England's damp climate. Although the early Britons possessed sheep, they seem to have used skins with the wool on. The art of spinning they learned from their Roman conquerors.

The amount of the world's capital invested in the sheep and wool industries and their economic importance are incalculable. Sheep have been in the past, as to-day, the backbone of the prosperity of nations. They have made Australia famous—and rich. Wool has been called the "flower and strength and revenue and blood of England." As early as 1739 it was reckoned that one-fifth of her population was engaged in the industry.

Sheep are pretty well distributed over the face of the earth. The world has something over 600,000,000 head, of which nearly one-third are in Europe. It is a curious fact, however, that while Europe easily leads in the pro-

Handling wool on a jetty at Port Elizabeth, one of the points from which South Africa exports most of the 150,000,000 pounds of wool which her sheep produce each year. Formerly, when we wanted South African wool, we had to buy it in London, the world's wool market, but now the British colonies are selling to us directly in large quantities.



duction of wool, it is seldom mentioned in reports on world trade, for the reason that it exports little.

Woolen manufacturing towns have risen and fallen at the whim of fashion. Fine broadcloths gave way before fine worsteds and coarser woolens yielded to worsted serges, and flannel underwear to that knitted from worsted yarns. Fashions sometimes change as in the Garden, under stress of circumstances. Only a short time ago it was announced that "skirts must come

down" because the English government intended to prohibit, as a war measure, the wearing of high boots by women. But the boots may have to go higher yet, because it may be harder to get wool than leather.

The wide adoption of European dress in India, China and Japan would further decrease our supply, as it would not only lessen our importations from the Far East but would cause those countries to enter the world markets as competitive buyers. This (Continued on page 48)

Angels of American Aviation

Wealthy Men Have Spent Millions To Strengthen the Wings of this Fledgling Industry Which Is Vitally Important to Our National Self-Defense

By WILLIAM SALISBURY

APPROPRIATELY enough, aviation in America owes its advancement to angels. "Angel" is used in the theatrical, not the biblical sense.

If the angels of aviation did not have higher motives than most theatrical angels, they would not come to the aid of this young and most precarious of industries. Only a few companies engaged in the manufacture of aeroplanes or conduct of schools of flying are rated in *Dun's* or *Bradstreets'*, and twenty of the forty millions spent in financing the conquest of the air in the United States have been lost. Only a few out of scores of concerns are as yet on a commercial footing.

It is not commercialism, but altruism to which aviation owes its present advancement. What the government would not do, and the public after the initial satisfaction of its curiosity did not do to support the art of flying, men of large fortune and large mind have voluntarily done. Millions made in oil and steel, in banking, traction, automobile manufacture, and in other commercial ways are being used to put on a solid base the building of machines to fly and the training of men and women to guide them.

In some cases there have been purely business reasons, but there is overwhelming evidence in the most important instances that the backers are in the game for the love of it. Perhaps only those persons who have felt the thrill of a first flight may fully understand this. There is a sensation in a first flight that can never be experienced again—a something more than a sensation, a spiritual exaltation.

It was after taking his first flight that William E. Boeing of Seattle asked: "What more patriotic thing can I do than build aeroplanes to defend my country?" This was in the fall of 1915, when the American government had done practically nothing for aerial defense, although the battle of the Marne and many of the most important conflicts of the European war had been decided by the aid of airmen.

Mr. Boeing had made a fortune in lumber. He took \$100,000 of it and started an aeroplane factory. Before he had gone very far, another \$100,000 was needed, and then another, and still another \$100,000. He lost \$400,000 before he began to get back anything. He has now invested half a million in the Pacific Aero Products

Company, and is obtaining more satisfaction therefrom than he ever got from any other activity in his business life, although his profits are still far in the future.

Inglis M. Upperco had been made rich by the Cadillac automobile when he took a flight near Detroit. Soon afterward he became the chief backer of the Aero-marine Plane and Motor Company, and moved to New York. Victor Hugo said that the difference between prose and poetry was the difference between walking and flying. Mr. Upperco would paraphrase that by saying that the difference between aviation and any other game is that aviation is poetry while aught else is prose.

Among the directors of the Wright-Martin Aircraft Corporation are Harry Payne Whitney, Harvey D. Gibson, Frederic W. Allen and John F. Alvord. William E. Corey and others with millions made in steel and oil are stockholders. The house of Morgan was for a time behind the Curtiss Company, but its control has now passed to Canadian capital.

THE Thomas Company, of Ithaca, N. Y., was a failure after a struggle of several years, during which time it had sold twenty-five aeroplanes to the Allies. Then Mr. Frank L. Morse of Ithaca took a flight in one of its machines. He had made a great deal of money in chains. In his enthusiasm for aviation he invested a million dollars, and now the Thomas-Morse Aircraft Corporation is one of the largest in the country.

Here are some of the members of the Aero Club of America, which for more than two years has actively campaigned for preparedness: August Belmont, Otto H. Kahn, George W. Perkins, Thomas F. Ryan, Cornelius Vanderbilt, W. K. Vanderbilt, Rodman Wanamaker, W. Earl Dodge, Cortlandt F. Bishop, James Gordon Bennett and John Hays Hammond. The club's membership also includes Vincent Astor, Edwin Gould, Ralph Pulitzer, Allan A. Ryan, Robert J. Collier and F. Trubee Davison. The latter is the son of H. P. Davison of the Morgan firm. All of these young men are aviators. Those members of the club and of other aero clubs who do not risk their lives are men who, almost without exception, hazard at least no small amount of money for the sake of promoting in their own country the most wonderful invention of this age of wonders.



COURTESY PENSACOLA CHAMBER OF COMMERCE

A navy aviator making a sunset flight over Pensacola Bay. Although Americans made the first successful aeroplane, we have lagged behind other nations in developing the invention. There are 73 'planes in our army and 20 in our navy—France alone has 10,000 at the front. Congress has set aside \$13,250,000 for the army and \$4,000,000 for the navy in hopes of regaining the prestige we have lost.

Our country is still far behind any of the great European powers, behind even many of the small countries in both output and construction of machines, as well as in the number of trained aviators. This is because foreign governments encouraged inventors and builders of air-

craft by large appropriations and in other ways. The Wright brothers were much more warmly welcomed in European capitals than in Washington, and their work was eagerly studied, copied and improved upon by the finest technical minds in the world. Here, the largest single expenditure until one year ago was \$40,000, out of the Board of Ordnance and Fortifications fund in 1909, for a Wright machine. A total of a few hundred thousand was appropriated for a period of several years, while every great nation in Europe was investing millions yearly. But in the summer of 1916 Congress, suddenly stung into action by the widespread movement for preparedness, set aside \$13,250,000 for aircraft for the army, and \$4,000,000 for the navy. It is expected to exceed this sum by about \$4,000,000 this year. But as yet there are only seventy-three aeroplanes in the service of the army

and twenty in the navy, although four hundred more have been ordered. France alone has about ten thousand aeroplanes at the front.

There are less than a dozen aeroplane factories in the United States, and the number of workers employed therein is not more than 6,000 or 7,000. To include those in the making of accessories would bring the total to some thousands more. The principal factories are in Buffalo, Ithaca, Los Angeles, Chicago, Brooklyn, College

Point, Long Island; Marblehead and Jamaica Plain, Mass., and Plainfield, New Brunswick and Nutley, N. J. Fifteen companies are represented in the American Association of Aircraft Manufacturers, formed February 9 in New York while the first Pan-American Aero-

navics Exposition was being held. Their combined capital of \$30,000,000 and their capacity of one hundred and seventy-five aeroplanes a week were offered to the government in the event of war. The association is designed to do for aeronautics what the Automobile Chamber of Commerce has done for the automobile industry in raising standards and promoting efficiency.

While the exhibition was on, the Society of Automotive Engineers which changed its title in January from the Society of Automobile Engineers to include one hundred members from the field of aeronautics, held a meeting to discuss standardization of parts. The industry must undergo much remodeling to end economic waste. Under present conditions it would be impossible to supply an adequate number of aircraft on short notice for the reason that aeroplane makers are dependent upon the manufacturers of parts

and accessories. The present lack of standardization puts it beyond the ability of even the largest of parts makers to manufacture with the proper degree of efficiency. There are widely divergent specifications by designers and inventors for sets of dies, jigs and tools. One of the largest companies has had to fill orders for as many as 2,800 different sizes and specifications for simple bolts alone. These were ordered in different lengths, diameters, thicknesses of heads and kinds of metals



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Another innocent war victim. An eagle caught in the guy wires of a French battle-plane as it made a scouting tour over the German lines. Not only have they invaded the air, but in some achievements, such as flying upside down, the aviator has surpassed the birds themselves.

The development of Aviation up to this time has been entirely of a military character, and largely for this reason America, since the first glorious achievement of flying, has lagged behind the militant countries. Seven million dollars' worth of American aircraft have been sent to Europe in the past two years, but not one battleplane from this country is now on the firing line. Our constructors have not yet mastered the art of building an air machine that will stand the recoil of a gun successfully enough for actual combat. There may be an occasional engine of American make on some of the battleplanes at the front, but the aeroplanes from this country are used only for training, scouting and patrolling. The military tractors on the Mexican border are good only for such uses, and they are chiefly of aid when employed against a foe without aircraft. Two French battleplanes have been ordered by our War Department for the purpose of copying their designs, but months must elapse before a machine of that type can be completed.

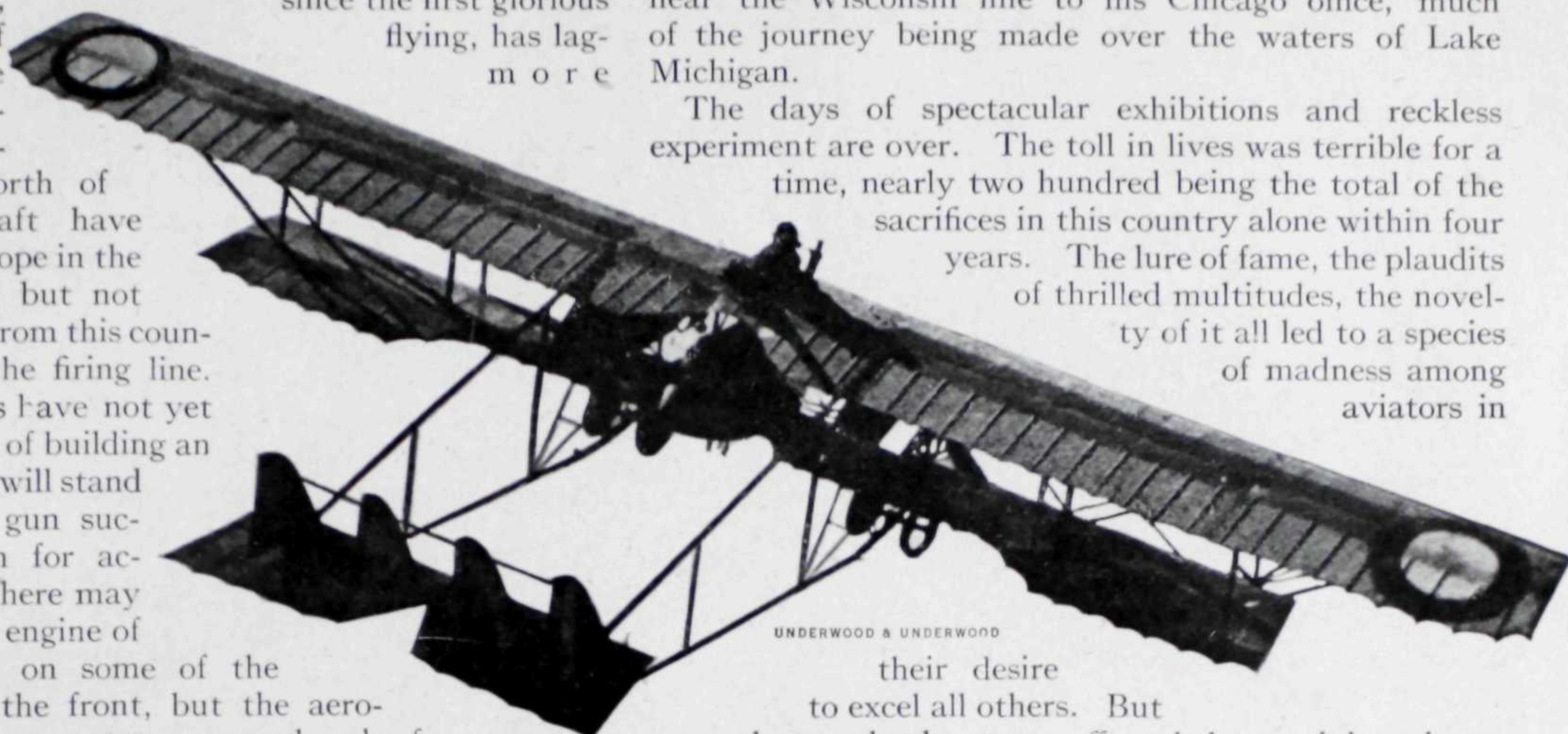
BUYING aeroplanes is not like buying army wagons," Philip J. Roosevelt says. "In importance it may be compared with the purchase of cantilever bridges. It is an engineering proposition, a thing requiring intricate knowledge and no little insight. Until very recently, our government officials have not known how to buy aircraft. Another reason for the backward state of aviation among us is the litigation over the Wright patents. We hope that the government will end this by acquiring all the patents and then throw them open to the public."

Mr. Roosevelt is a member of the first aero squadron to be mustered into the federal service from New York, and he is also military editor of *Aviation and Aeronautical Engineering*. He blames the Secretaries of War from the time that the Wright inventions were announced up to the administration of Newton D. Baker for the lack of governmental aid. But Mr. Baker, he says, has done all that he could to impress upon Congress the great need for aerial defense. Plans are now being put into execution for supplying the coast artillery with machines, \$4,800,000 having been appropriated. These machines will be able to reconnoiter at sea and give warning of the approach of an enemy, ascertain the range for artillery fire, and drop bombs on hostile fleets.

Mr. Roosevelt thinks that within four years there will be aerial mail routes connecting the principal cities. The long non-stop flights of Victor Carlstrom and Ruth Law demonstrated that this is feasible, and the post-office authorities have already shown a friendly attitude. The flight of sixteen aviators from the training field at Mineola, Long Island, to Philadelphia without serious accident, is one of the most recent evidences of the

facility of aerial travel. For weeks last summer Harold F. McCormick aeromotored every day from his home near the Wisconsin line to his Chicago office, much of the journey being made over the waters of Lake Michigan.

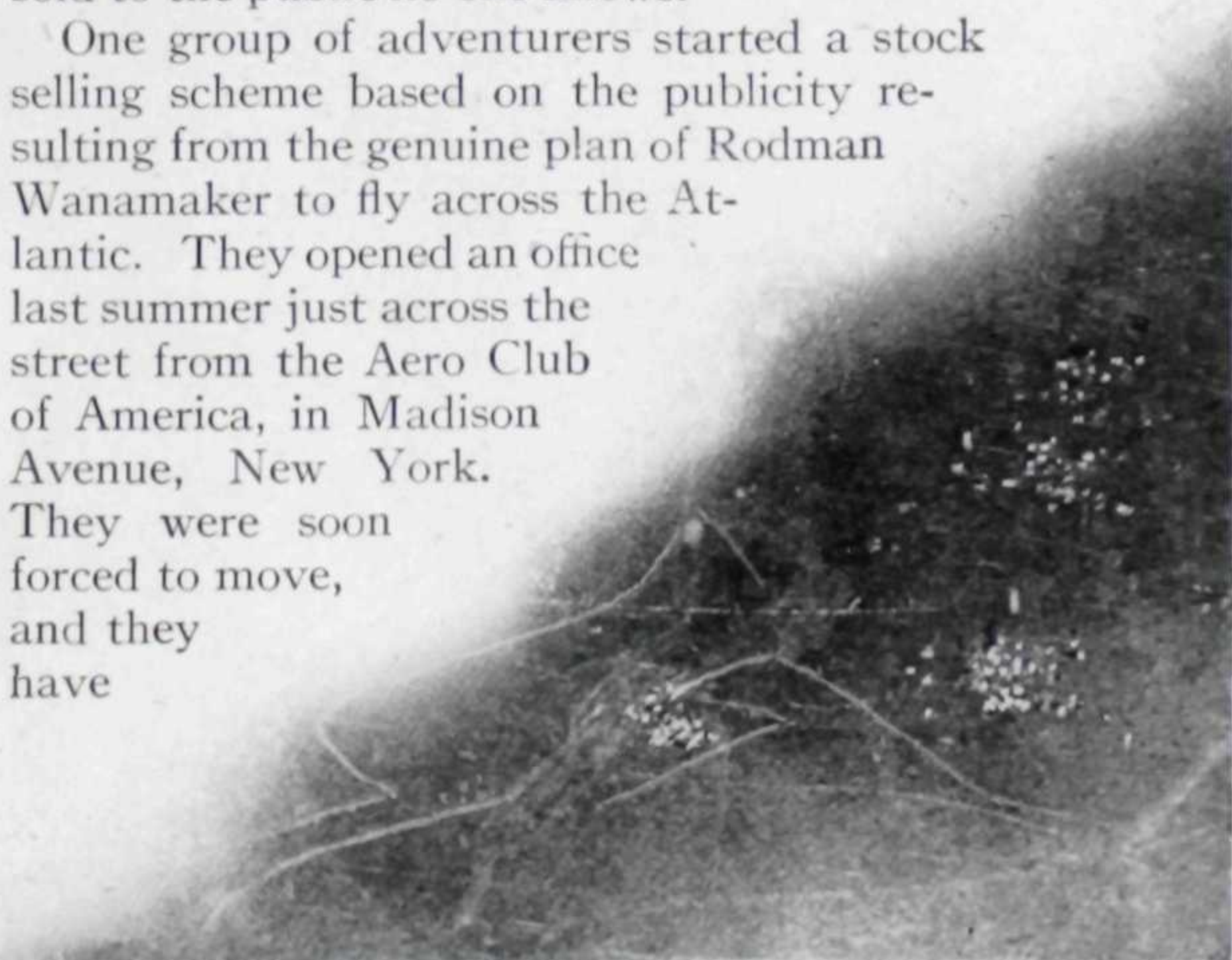
The days of spectacular exhibitions and reckless experiment are over. The toll in lives was terrible for a time, nearly two hundred being the total of the sacrifices in this country alone within four years. The lure of fame, the plaudits of thrilled multitudes, the novelty of it all led to a species of madness among aviators in



their desire to excel all others. But the novelty has worn off, and the surviving airmen have been sobered by the fate of their fellows. Moreover, exhibitions do not now pay enough to attract many of the best flyers, and the menace of war has given a feeling of greater responsibility to family and country. Each trained aviator is reckoned as of more value than a regiment. General Pershing has said that for observation purposes an airman is worth a cavalry corps. The records of the American army from January 1 to December 26, 1916, show that 7,087 flights were made, a distance of 251,775 miles traveled, and a total time of 3,357 hours spent in the air without a fatality. There were several deaths in the navy, and a few fatal accidents among civilian aviators, but proportionately there were far fewer than were caused by the use of automobiles.

On the manufacturing side, the organization of reputable companies into an association will discourage stock fluctuation and other kinds of fraud on the public. Some of the capitalization of concerns in the association is frankly stated to be as yet of no par value. But possibly a billion dollars' worth of stock in aeroplane companies has been issued. How much of this has been sold to the public no one knows.

One group of adventurers started a stock selling scheme based on the publicity resulting from the genuine plan of Rodman Wanamaker to fly across the Atlantic. They opened an office last summer just across the street from the Aero Club of America, in Madison Avenue, New York. They were soon forced to move, and they have



since led a shadowy, elusive existence. The wonder of it is that they could persuade anyone to invest in such a project with any hope of a return. Mr. Wanamaker and his associates expect to spend many thousands of dollars merely in the attempt to be the first aerial trans-Atlantic voyagers. They have postponed the trip until the end of the war. Lieutenant John Cyril Porte of the British Navy, who will be one of the party of six, is now in charge of aeroplane construction work at Bournemouth, England.

The average citizen is tempted to invest through the recital of what has been accomplished. The first Wright flyer had a twelve-horsepower engine, and it stayed in the air but a few seconds on its initial trip. Machines are being made to-day capable of carrying thirty passengers, traveling in the air for hours without a stop, and driven by engines of 1,000-horsepower. Ten tons can be borne in addition to the weight of the aeroplane. One machine has ascended 26,260 feet, or nearly five miles, and another has flown without touching the ground for more than twenty-four hours. Between sunrise and sunset another has traveled 1,300 miles. A speed of one

hundred and thirty miles an hour has been made by a recent model. Aviators have hunted and slain, and in some cases have captured alive, ducks and quail, pelicans and sea gulls whose wings propelled them less swiftly than the man-made machines could go, and other airmen have shot coyotes and bobcats, and even sharks, from the cockpits of 'planes skimming a few score feet above the surface of land or sea.

And more than all this, human travelers in the air have outdone the birds in their own element by flying upside down, and some have written their names in the sky at night in letters of fire. Santos-Dumont, the Brazilian genius and pioneer of flight, says that one of the giant cars now being built in England could carry a score of passengers from New York to Rio Janeiro as easily as Carlstrom flew from New York to Washington. Stations for the taking on of fuel, six hundred miles apart, would mark the only stopping places.

An aerial route like that would do more for international friendship than any treaty. Who will be the first "angel" to promote it?

While Machines Weave Snares for U-Boats—

FISHERMEN'S nets are redolent of the sea, the ages, and every people in every stage of development. Weaving nets is one of the most ancient and universal arts with which man has lifted himself by his own bootstraps out of primitive savagery. So long as the sea teems with life we shall need nets. While the Filipino women in the picture make beautiful snares from hemp with a dexterity they have inherited from a time long before the memory of man, machines weave the nets that take fish in our lakes and off our shores.

Vying with deft fingers, our machines accomplish a task so difficult that when Napoleon heard that Jacquard was assaying a mechanical device he summoned him and demanded, "Are you the man who pretends to do what God Almighty cannot—tie a knot in a stretched string?" Having achieved fish

nets, our machines have proceeded to weave steel wire, and even to produce by the mile a new horror for war on European battlefields, barbed wire!

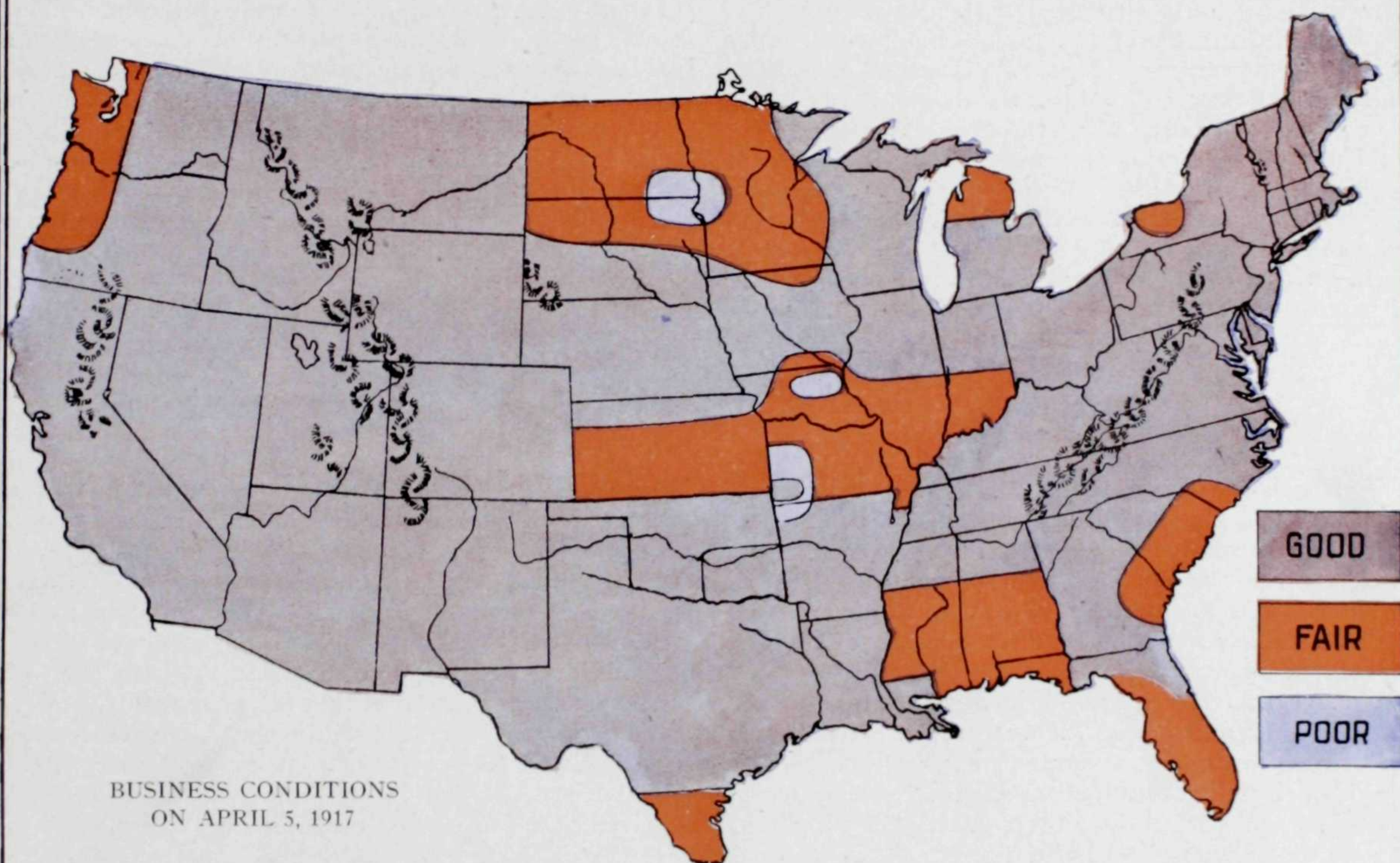


MONTHLY SURVEY OF THE NATION'S BUSINESS

By ARCHER WALL DOUGLAS

INEVITABLY the business thought of the day turns to the probable effect of our entrance into war upon our present unexampled prosperity.

Unlike peace, the coming conflict will not be sharply differentiated in its effects sectionally, nor yet by industries, for it will probably stimulate alike every form of industry. The Federal Government is likely to prove, as always, a buyer of vast proportion and of apparently insatiable needs for the time being. Consequently any intelligent analysis of the situation must comprehend and include every phase of the Commercial, Agricultural and Traffic worlds as suppliers of Governmental wants.



These suddenly created demands will naturally be expressed in the beginning for munitions of war, thus affecting all the useful metals, and for accoutrements, which will call for vast quantities of things made of canvas and of leather. There will also be an innumerable multitude of minor needs, minor only as to volume and not as to importance, such as the necessary articles for the health and sanitation of a suddenly created army, the furnishings and cooking implements of camp, and great supplies of food of all description. Armies are very wasteful, however excellent their organization, and this must be reckoned with in calculating the volume of the new demand that will soon be upon us.

Railroads and factories must perforce give preference to Governmental needs, and domestic business, already hard put to get goods enough for its purposes, must make up its mind to lessening supplies and still higher prices. These factors will naturally further stimulate and lengthen during the war's duration those business activities which already have felt the impulse of abnormal demand. But none the less will they render harder and all the more certain that coming readjustment which lowers upon the distant horizon. So far as manufacturers are concerned, there will be one vital

distinction between the orders they have had from Europe and those they will receive from our own Government, and that will be the one of far less profit. Fortunately for general business spending, this difference is likely to affect the investing rather than the earning classes.

The crops still continue the keynote not only of the business but the social situation. Fortunately matters agricultural have improved materially within the past 30 days. Much of the frozen garden truck of the South has been replanted. Winter Oats in the same locality have not been so badly hurt as at first reported. Best of all, general and generous rains over all the Winter Wheat belt have done incalculable good to the growing plant. There has been some winter killing and some hurt by dry weather—severe in spots—but the general condition of wheat is distinctly better, though not up to a fully satisfactory percentage. More rain is needed in Kansas, and in some scattered localities the damaged wheat has been plowed up and planted to oats. Peaches, always previous in their Spring appearance upon the slightest promise of warm weather, have gotten into trouble in the Ozark regions of Missouri and Arkansas, and seem to be badly hurt by recent cold weather. It is also very dry in extreme southern Texas, that at times being somewhat of a habit in that newly agricultural and enter-

prising section. Contrariwise it has been very wet all over California, thus giving assurance of abundant crops. Wet, cold weather throughout the East, and in all the section East of the Mississippi and South of the Ohio Rivers has greatly delayed farm work. But a wet Spring—not too wet—is ever the harbinger of an abundant harvest. In many agricultural sections good seed of some staple products are hard to get. Also farm labor is scarce, for the lure of high prices as factory hands outweighs distance from the madding crowd and the charm and noiseless tenor of the ways of country life. Despite these handicaps, it is very sure that there will be an enormous acreage planted to agricultural products this Spring. Already that of early potatoes is 17 per cent greater than last year.

Manufacturers continue hopelessly behind in filling orders, and those who ship promptly are as lonely as a sparrow on a housetop and a lodge in a garden of cucumbers. There are increasing numbers of retailers who are buying high-priced articles only from hand to mouth. This, too, despite an unceasing and nowise diminishing volume of trade. The business world apparently awaits the coming of war entirely undisturbed, and with utmost confidence in the strength of the domestic situation and the ability of our democratic form of government and the patriotism of the people to meet any emergency.

The Argentine Republic Follows Suit

THE business men of the Argentine Republic have taken a step towards bringing the commercial organizations of their country into closer relations, and their action has a special interest for us in that they are following the methods which have proved so successful in establishing a new spirit in business in the United States.

When delegates from the agricultural, industrial and commercial organizations of Argentina came together for the purpose of forming a permanent federation in order to promote cooperation among the associations interested in the economic progress of the country, they took the Chamber of Commerce of the United States as their pattern. The general objects of the new organization are on all fours with those of the United States Chamber, and not only have the by-laws of the latter been copied, but it is proposed to follow its example in the operation of the new association. Furthermore, our Argentine imitators hope to establish a reciprocal exchange of commercial information between the two chambers.

The new federation, the *Confederación Argentina del Comercio, de la Industria y de la Producción*, which, turned into English, means the Argentine Commercial, Industrial and Produce Association, was set going in Buenos Aires on September 11, under the presidency of Senor Luis E. Zuberbuhler, President of the *Bolsa de Comercio*—the Board of Trade. Its aim is to look out generally for the interests of business, agriculture and manufacturing in the nation, to adopt such measures as will redound to the benefit of those interests and the general economic welfare of the country, and to create a common medium for the accomplishment of these objects. It will inform itself by study of economic con-

ditions and of the needs of commerce, and will take as its own such questions as ocean and inland freights, custom tariffs, impost laws, regulations affecting business and manufacturing, credits, fostering of stock raising, agriculture and other branches of national industry; commercial treaties, legislation concerning commerce, and, generally, all matters which interest the associated organizations. It is believed that the welding of the power of all of these associations into one force will tend to stabilize the laws of the country, especially those touching the transaction of commercial business. The new chamber will follow the example of its American prototype in having an official publication.

THE *Confederación* starts with the stamp of governmental approval, Ministers of Finance, Interior, Agriculture and Public Works, as well as some of the minor department officials, being present at its inauguration. It is not the intention, however, to ask for more substantial recognition from the government.

This federation, with its desire to cooperate with the organized commercial bodies of the United States, probably will mean much to us in our efforts to secure a better understanding of a people, and their needs, among whom we are anxious to extend our trade. A reciprocal exchange of commercial information can hardly fail to be mutually helpful. We are, so to speak, trying to learn the technique of doing business with the South Americans, and, if reports be true, we have a good deal to learn. Similar federation of commercial organizations in all of the countries south of us and cooperation between them and us would probably be highly advantageous to all parties concerned.

What the Business Man Saw Underneath Discarded Tins and Cast-Off Shoes in the Back Yard He Detected Soil on Which His Employees Could Grow Corn and Grow Better

By W. F. FRENCH

MILLIONS of back yards and vacant lots await the hoe and the spade of the on-coming and swelling ranks of the amateur gardener. Everywhere ground which has been an eyesore will bud and blossom.

The Department of Agriculture has placed the stamp of its approval on the home and club garden movement by appointing H. M. Conolly, of the States Relations Service, to direct the work in the City of Washington. He will tell the thousands of amateur grubbers what to do and how to do it.

The city will be divided into districts, and in each district a number of gardens, some of them boys' and girls' club gardens, others home gardens, will be selected and treated as models. Mr. Conolly will visit these model gardens at regular intervals, giving instructions and demonstrations as to how to plan a garden, what to grow, and how to plant and care for vegetables. All gardeners in a district will be expected to attend these conferences, and each will be asked to keep a record of the results obtained.

The Government is doing something along this line in the States through the 1,200 county agents who are the

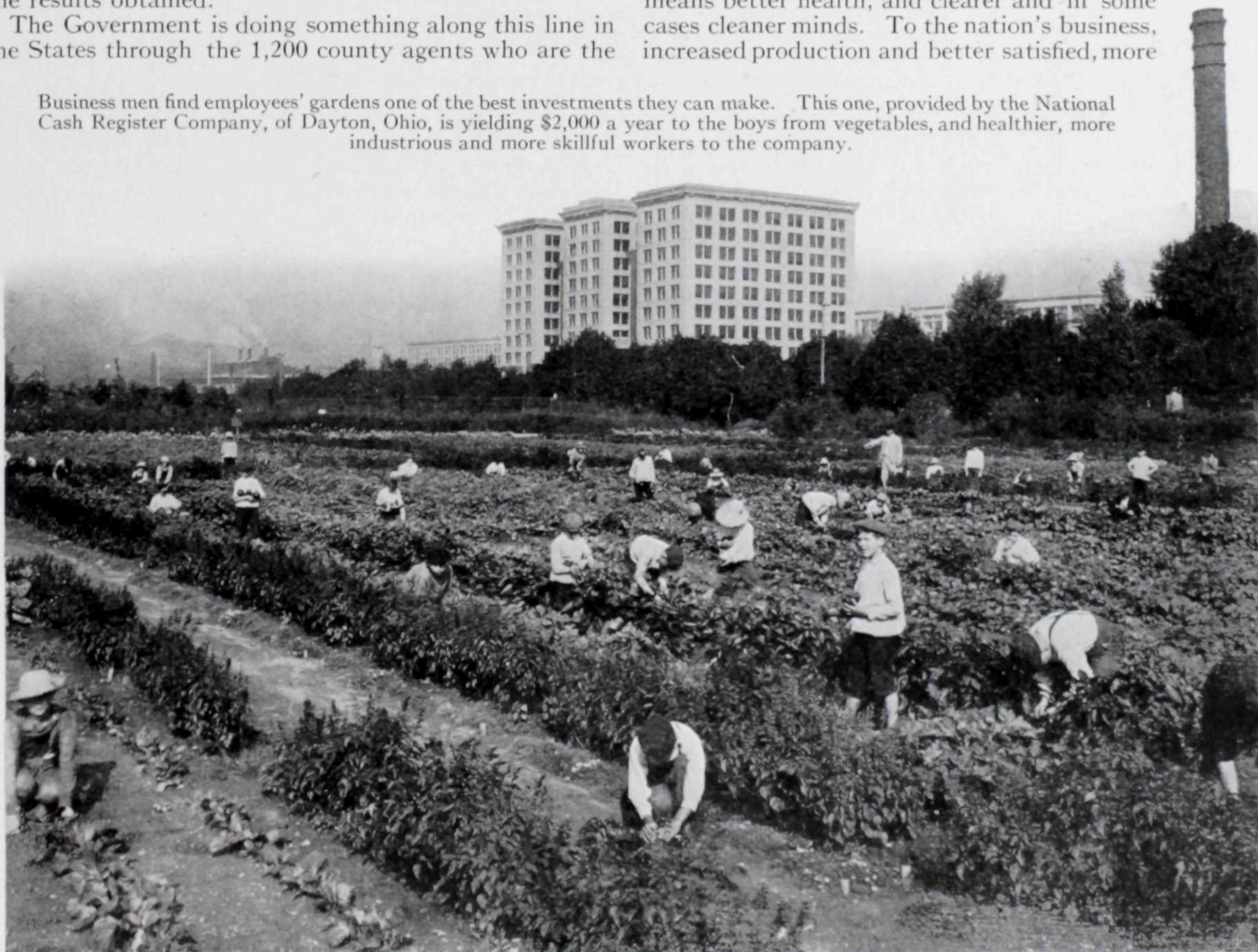
joint representatives of the Department of Agriculture and the States, and also through aid lent to boys' garden clubs.

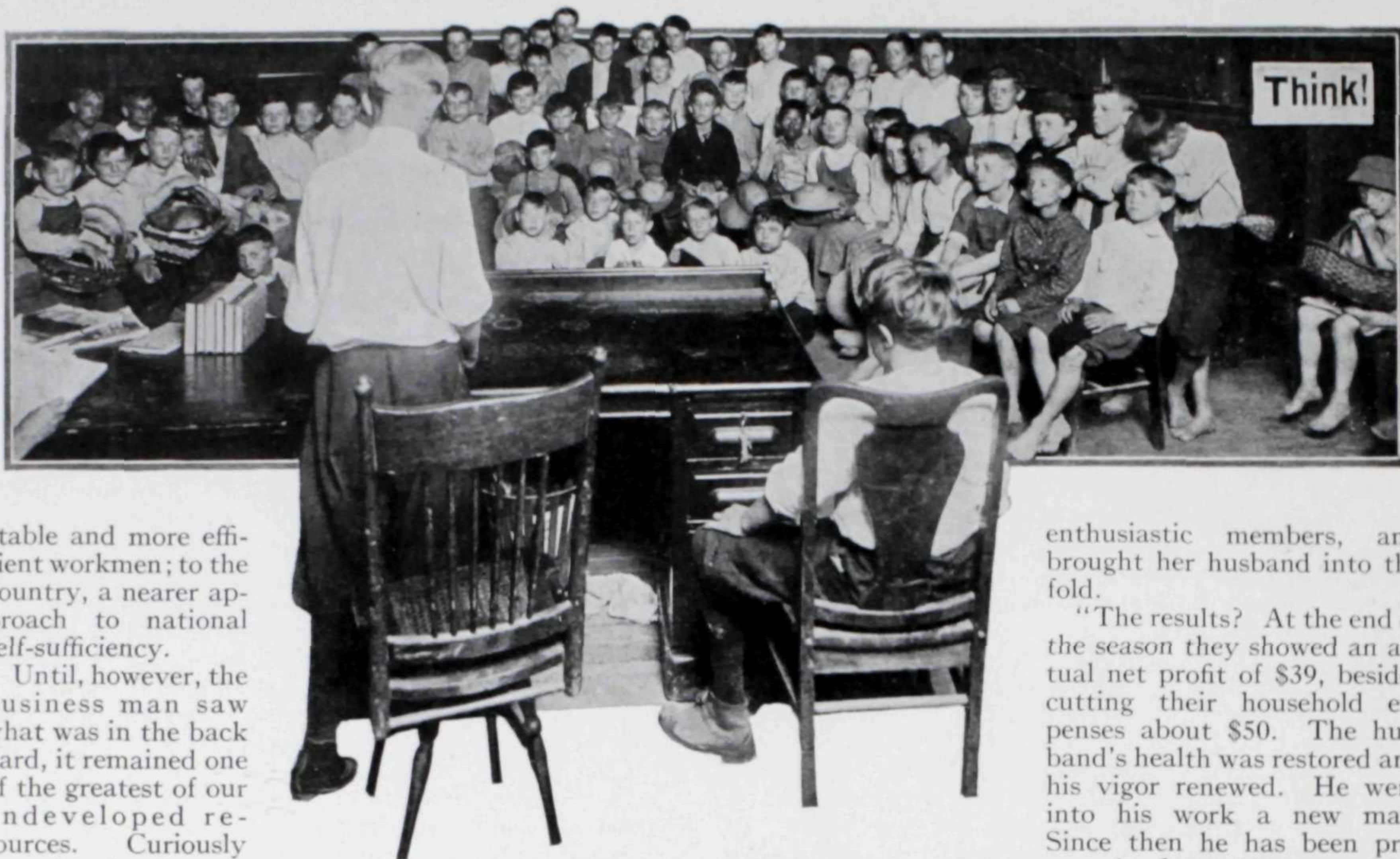
The average cramped back yard in a large city, hardly big enough to "hang out" the family washing in, is worth as much to its owner as a \$1,000 government bond, while the larger areas surrounding suburban and small city and town homes are worth two or three such bonds.

The back yards and vacant lots of the country, if capitalized, ought to yield something like one billion dollars a year—more than the giant wheat crop of 1915 at its high price brought to the farmers—a pretty addition to the wealth of the people. If we take into account the fun and the benefits to health that the owners will get out of digging, their back yards will give a greater return than the bonds.

Translated into terms of cabbage and potatoes and carrots, the back yard means the groaning dinner table dear to the hearts of our grandmothers; into terms of domestic economy, lower grocery bills. It means better health, and clearer and in some cases cleaner minds. To the nation's business, increased production and better satisfied, more

Business men find employees' gardens one of the best investments they can make. This one, provided by the National Cash Register Company, of Dayton, Ohio, is yielding \$2,000 a year to the boys from vegetables, and healthier, more industrious and more skillful workers to the company.





Business meeting of the Boys' Garden Company, Dayton. Keeping account of garden expenditures and profits is a business discipline the value of which employers were quick to appreciate.

stable and more efficient workmen; to the country, a nearer approach to national self-sufficiency.

Until, however, the business man saw what was in the back yard, it remained one of the greatest of our undeveloped resources. Curiously enough, what he saw were increased dividends for himself. The profits to the owner of the garden were incidental. So the business man set about establishing garden clubs. If his employees didn't have back yards, he provided space in vacant lots. And the idea grew and grew until it has become an American institution with European ones patterned after it.

INSIDE the office, I found one of these business men, the big "Boss" of thousands who toil in and about the great buildings of his plant.

"Yes", he said, leaning back in his chair, "the club is a great success. It has done wonders for us. The men out in the plant, the boys in the office and the families at home imagine that it is a straight-out piece of philanthropy, guiltless of any commercial value to us. But we are the ones who are getting the best of the bargain. It has lifted loads off our shoulders and returned bigger dividends in dollars and cents, as well as in satisfaction, than anything else on our books.

"Only the other day one of our senior clerks came to me with his confession of faith in the club—how it had saved him. For more than a year his strength had been failing. He was going back. It was apparent in his work, at home, everywhere. Worry added to his troubles. He was 'demoted' and his salary materially cut. Finances began to pinch. That was the beginning of the end.

"In desperation he sought a way out of the ruin into which he was slipping—a way back to health for himself and comfort and happiness for his family. Then one of his associates suggested the club to him. (A paid missionary, if he but knew it.) But he thought the idea rather silly. However, when he got home that night he found that our club had telephoned to his wife and outlined our plan to her. Soon she was one of our most

enthusiastic members, and brought her husband into the fold.

"The results? At the end of the season they showed an actual net profit of \$39, besides cutting their household expenses about \$50. The husband's health was restored and his vigor renewed. He went into his work a new man. Since then he has been promoted twice and is now making more than ever before in his life. He is easily twice as valuable to us as he was a year ago, and is considered one of the best men on our general force.

"That man is only one of many that the club has saved for us. We have watched its work and tabulated the results, and I can freely say that in nine cases out of ten the men who joined the club have increased in value to us from 25 to 300 per cent, depending upon the state of their health and their attitude toward their employers at the time of entering the club. When it comes to reclaiming and developing employees, the club is in a class by itself."

That is the opinion generally expressed by business men of the garden clubs organized among their employees. The plan is simple. The employers furnish the land, and each member enjoys the privilege of using one of the small garden plots for the raising of vegetables or flowers for home use or for sale. The membership fee, usually about fifty cents, is just enough to cover the cost of the implements furnished to the member. The average family takes two memberships, one for the husband and one for the wife. And sometimes they are taken out for the children.

Ordinarily each plot can, by careful cultivation, be made to produce about sixty dollars' worth of truck. Thus a family with two memberships can grow over a hundred dollars' worth of garden stuffs a season. The gardeners usually spend an hour or two in the morning and perhaps an hour in the evening among their crops, and this physical exercise in the open proves a valuable tonic to them, especially to those who work in offices.

The employees' garden movement is gathering momentum every year, and clubs are springing up all over the country. The average manufacturer of today recognizes in them one of the greatest efficiency builders and satisfaction producers yet discovered.

The Boys' Garden Company, of Dayton, Ohio, com-

posed of boy employees of the National Cash Register Company, is one of the best known. To each member is allotted a plot ten by fifty feet. He has absolute control of this little garden and may raise in it whatever he desires. The only requirement laid upon him is that he perform a minimum of two hours work in it each day. He may do as much more as he pleases. The morning hours of work are from six-thirty to seven-thirty and the evening hours from four to five.

The company has about one hundred members, or shareholders, who are in complete charge of the company's affairs. The company has its president, chairman, board of directors, and such other officers as are necessary for the proper transaction of business. A club house is furnished by the company. The boys buy their stock at fifty cents a half share, and are required to pay no further charges. Last year the company raised about two thousand dollars' worth of vegetables, on an acre and a quarter of land. Intensive cultivation, one might say.

About one-half of the vegetables raised are taken home by the members of the company and the rest sold, some by house-to-house canvass, with the result that merchants selling vegetables in the town find it decidedly poor business to attempt to deliver any but the choicest green goods. The Boys' Garden Company has educated the housewives to crisp, fresh vegetables.

The club has changed "tough" and vicious boys of Slidertown into useful citizens, and now exerts its influence on the youngsters of the entire city, having completely eliminated the rowdies by a process of education. No one realizes better than the officers of the National Cash Register Company the benefit of the garden. They have seen bad boys transformed in a single season. Boys with a garden in which to raise cabbage are less likely to raise Cain elsewhere. They know the tremendously increased ability to do good work that grows on the boy in the garden. They know what it means to his health, his nerves, his temper, that it is a cure for laziness, develops thrift and industry, and that their system of requiring each boy to keep a little set of books of his garden expenditures and profits is the finest business discipline imaginable.

So successful has been their boy garden club that they

have started one for girls, and have in the neighborhood of fifty members. They have also furnished gardens for their men, and have noted increased efficiency among the gardeners.

If further proof were needed of the success of the gardens, it would be found in the announcement that the

Labor Commission from Great Britain upon its return home, submitted a report that has resulted in the establishment of more than 1,500 boys' gardens in Great Britain and almost 30,000 in France.

The lessons learned at work are carried home, and the great back yard garden movement is the result. During the past three years the number of back yard gardens, according to a reliable authority, has more than doubled. The extent to which the movement has taken hold may be judged from the increasing and persistent demands that apartment dwellers are making upon real estate men to supply garden space. At first the landlords and their agents considered these calls the result of a fad, and laughed them off—but they're not doing that now. They are hustling for garden space or for new tenants.

A booklet issued by the Government tells what has been done with school gardens and what may be done,—how a seventeen-year-old high-school boy conducted a market garden project in which his gross receipts amounted to \$1,146.30, with a net profit of \$768.75, after deducting the amounts paid out for rent, labor and supplies, and charging up his own labor. How a girl in Iowa earned \$114.05 from growing and canning tomatoes, and how a twelve-year-old Cleveland girl, in her spare moments, specialized on flowers and realized from her garden \$1,057 in seven years.

The Government suggests gardening as a solution of the child-labor problem, and as a means of keeping the child longer in school. It is usually the desire for spending money that leads the child to plead to be allowed to leave school and go to work. When a pleasant way, such as gardening, is found to enable the child to earn the required money, the problem of keeping him in

school and "out of mischief" will be practically solved. "Many children," a Government bulletin says, "in

COME INTO THE GARDEN

THE beginning of things was in a Garden and not only has it been an attractive place ever since, but our troubles commenced when we were exiled from it. Just now it is more than a subject to write essays about, as did Charles Dudley Warner, or to immortalize in verse, as did Tennyson, or even to gratify the primal instinct to dig the ground. For the main food crops were short last harvest, and an unprecedented demand from warring Europe has so accentuated the situation that it bears heavily on every family, in the shape of abnormally high prices for all food products. Moreover, misfortunes always tread upon each others heels, so the severe cold in January and February destroyed much of the early vegetable crop in the Southern States.

There is but one remedy, which is to raise more things to eat this year than ever, and most every man and woman can contribute something to that end by planting a vacant patch of ground in vegetables.

It is evident that a great many persons are going to garden this year who have never done so before, and the matter can be greatly helped if every commercial club and every chamber of commerce urge it upon the citizens of every town and city. There is nothing in the world so wasteful and so uneconomic as uncultivated and unused land.

Many of our serious social and economic problems are due to the misuse and lack of use of land. Productive land is the most valuable thing in all the world, for the whole world depends upon it for its very existence.

Much can be done now to reduce the menacing cost of food products. The unvarnished and uncensored truth is that short crops this year would be an appalling calamity, such as is not pleasant to contemplate. The remedy for this is to plant foodstuffs now in every available plot of land.

Example will count for much. But it should go beyond personal initiative and enthusiasm. It should be a matter of civic pride and endeavor in hamlet, town and city throughout the land.—*The Editor.*



these days are predisposed to nervousness, and our quiescent method of training aggravates the trouble. If some interesting form of exercise or employment should be provided, fewer children would be forced to quit school at an early age on account of poor health, and fewer of them would be physical wrecks on the completion of their school careers. Gardening is a most accessible means for supplying this need. Such an occupation furnishes simultaneously both physical and mental exercise, and with it a compelling motive which is so essential in recreation for the young."

The Government also points out that most boys and girls brought before the juvenile court are victims of idleness or poverty; that many of them are bright and capable, and that the poor children who steal are usually the most ambitious; that "they are not satisfied with their conditions and if shown a better opportunity probably would be the first to grasp it". To this class the garden is salvation, providing occupation and profit.

The vacant lot movement has invaded many towns and cities, the most conspicuous among which are, perhaps, Philadelphia and Minneapolis. It is estimated that some 5,000 acres of vacant lots in Minneapolis have been turned into flourishing gardens. At the rate of

intensive cultivation applied by the Boys' Garden Company, this would mean \$1,600 an acre, or a total of \$8,000,000 of produce, from Minneapolis' vacant lots each year.

Recent figures from Greater New York show that there are in the neighborhood of 190,000 vacant lots there. What the actual agricultural value of these lots is no one knows, but it runs into many millions of dollars. A little town in Illinois recently started a back yard and vacant lot garden campaign and arranged to keep tab on the actual foodstuffs produced. This was not found possible, but estimates taken from the figures available indicate that this little town of less than 3,000 inhabitants grew over \$4,000 worth of vegetables and flowers in back yards and vacant lots.

A food expert estimates that \$50,000,000 worth of vegetables will be grown this year in employees' gardens, school gardens, back yards and vacant lots, but the other advantages to be derived from the movement overshadow by far the cash value of the produce raised. To the employer the chief interest in these gardens lies in the fact that they are turning out a better grade of employees.

Organized Business Takes A Trench

Holding First Line of Defense, It Helps Restore Nation's Credit
When Lack of Funds Prevented Purchase of Army Supplies

By ANTON CHARLES

ORGANIZED business has proved itself a mainstay of government in an international crisis. It has helped to maintain the commercial credit of the nation. It has come to the rescue of the government when the purchase of army supplies was impossible because of lack of funds. It has come to the rescue of contractors furnishing those supplies. It has set at naught, for the public good, long-established practices of the financial world. As the country approaches war, it leans heavily on business—the arm of the nation welded into a single force and pledging in a single voice self-sacrificing public service.

The Chamber of Commerce of the United States, mouth-piece of organized business, backed by the votes of the more than 800 associations composing it, took a stand for universal military training and national preparedness.

Then a thing more significant yet of the new spirit in business was done,—a thing justifying the vision of Harry A. Wheeler, first president of the National Chamber, that "men will make, as they serve the Chamber, self-interest second, commercial patriotism first, nation above personality."

Of its own volition, organized business declared against excessive war profits. War no longer was to be the agony of a whole people for the enrichment of a few. The duty of universal service bound the manufacturer

An unconventional portrait of Franklin K. Lane, Secretary of Interior, one of the many Washington officials who have taken up seriously the matter of personal preparedness. Secretary Lane is firing a regulation Springfield rifle which will kill a man at three miles, if it hits him in the right place.



Franklin D. Roosevelt, Assistant Secretary of the Navy, on the rifle range at Winthrop, Md. He is one of the 100,000 civilian members in the National Rifle Association of America. Most of the members in the 1,800 clubs of this organization are business men. Many big concerns have encouraged the formation of such clubs

among their employees. Familiarity with firearms is one of the first requisites of the soldier. There is some comfort for us in the fact that we have more than 1,000,000 hunters, ranchers, farmers, and trap shooters in the United States who can handle guns and shoot them straight.



furnishing supplies no less than it bound the man in the trench. Business men pledged to the country the output of their mills and shops on a basis that would give them only enough return to protect the stability of their securities. In serving the Chamber, men had learned how to serve the country better.

A meeting of 14 men in Washington City on April 2 signalized the new relation of business to government. The National Chamber had taken the position that every able-bodied male citizen owed military service to his country. It knew that the manufacturer and the merchant, the expert in transportation, the expert in standardization, could render military service of the highest order before the outbreak of actual hostilities. It offered that service in any capacity in which it should be required. The first call came from the Council of National Defense. It was for coöperation with the Quartermaster Department of the Army in the purchase of supplies. Committees of business men, experts in the commodities which would be purchased for the army in their localities, were appointed in the 14 cities where the Quartermaster Department has depots, and when bids for contracts were opened, those men were present to give the army officials the benefit of their knowledge of materials and prices.

They are devoting their time to studying the problems confronting those charged with the equipment of the army. Fourteen of them, all but three chairmen of their respective committees, journeyed to Washington, at the expense of the National Chamber, to confer as to the best manner of rendering a conspicuous public service.

All sections of the country were represented. From the East came Edward D. Page, New York; Calvin M. Smyth, Philadelphia, and James L. Richards, Boston. From the Middle West, H. B. Lyford, Chicago; W. A. Layman, St. Louis; Fred L. Dickey, Kansas City; W. D. Horsford, Omaha; Thomas F. Smith, Jeffersonville, Ind. From farther still came F. Dohrmann, Jr., San Francisco; William D. Wheelwright, Portland, Ore.; J. D. Lowman, Seattle, and from the South, Albert Mackie, New Orleans; Luther B. Clegg, San Antonio, and Charles J. Mapel, El Paso.

On March 6, the governmental machinery for the equipment of the army came perilously near to a dead stop. Congress had failed to pass the army appropriation and the urgent deficiency bills. The government could no longer pay for army supplies. Contractors to whom it was indebted for thousands of dollars refused to do further business with Quartermaster depots until the government should pay its debts. Contractors could not obtain advances from banks upon government vouchers, because of the form in which they are drawn. In some instances, contractors were threatened with ruin. The form of the vouchers could be altered only by act of Congress, and Congress was not in session.

With the country facing almost the certainty of war, Col. J. M. Carson, Depot Quartermaster at New York, had to admit that it was almost impossible to purchase vegetables for the army, owing to his inability to guarantee prompt payment, and that for the same reason, certain supplies could not be obtained at any price. Bills to the amount of \$400,000 for goods furnished to the depot were overdue.

At this stage, the New York situation was taken in hand by Edward D. Page, chairman of the New York committee of the National Chamber of Commerce to coöperate with the Quartermaster Department. He laid the matter before the firm of J. P. Morgan & Co. His proposition did not commend itself to the business judgment of the bankers; it was a clear-cut appeal to patriotism.

"I have come to borrow one million dollars, without interest, for an indefinite time, upon security that is legally no good."

At the end of twenty minutes, Mr. Morgan said:

"I think that we ought to advance the money. As it is not, strictly speaking, a business transaction, we shall charge no interest on the money; and, if there is any loss, I will assume it myself."

Similar situations obtained in other cities. Calvin M. Smyth, of the Philadelphia committee, where the Quartermaster Depot was facing about two million dollars in unpaid bills, appealed to the Clearing House Association through the Philadelphia Chamber of Commerce, and the active interest of (Concluded on page 52)

The TRADE ROUTE

by C. L. Edson

MAKING a journey to Hindustan,
Finding a path into far Cathay;
This was the way that it all began—
A camel trail and a caravan,
Donkey driver . . . and merchant man,
Staggering eastward day by day.
Breaking a trail to Hindustan,
Seeking the markets of old Cathay.

A bale of silk and a China bowl,
A lacquered tray and an ivory fan,
Art . . . to nourish the dreaming soul,
Tea and spice . . . for the inner man.
That's how the eastern trade began,
That's why a road through the desert ran,
To the Orient as its distant goal.

Over that trail for a thousand years,
They came to the blue Aegean's shore,
While the towers of Troy and the Trojan spears
Rose and guarded the eastern door.
But the Greeks came by in a thousand ships,
And the towers of Troy to the earth were thrust,
And Helen, the fair, with her luring lips
Is now . . . but a whisper from the dust.
But the road to the East was free again,
And commerce nourished the needs of men.

Out of that commerce the arts were fed,
Learning lighted its fires in Greece,
Literature rose with its bay-crowned head,
And sang the glories of trade and peace.

* * * * *

Today the cannons cry out to kill,
And their thunders echo on every sea,
As the nations bid for that road-head still,
Where the trail of the camel used to be.
When the battle flags again are furled
And the war for the Golden Horn shall cease,
Throw the road-head free to the waiting world
And welcome the Thousand Years of Peace!



"THAT WAY MADNESS LIES"

But the "Mad" Inventor Has Changed the Age-Long Habits of Mankind, Made a Scrap Heap of Old Industrial Methods and Given the World a New Commerce

By BRISTOW ADAMS

FOLKS who ought to know say that we are using up five thousand miles of motion pictures in the United States in a week. Those who are quick at figures say that this means an annual investment in the unexposed film alone, of about eighteen million dollars a year, to say nothing of all the money that goes into the salaries of operators, managers, writers, and actors. One may make due allowances for the enthusiasms of the press-agent, and may be inevitably reminded of the old adage that though figures won't lie, still liars will figure, and yet not have a full realization of the enormous sums that have come through the development of a form of amusement in the past 25 years. And the business is growing so rapidly that the statistics will not stay put over night.

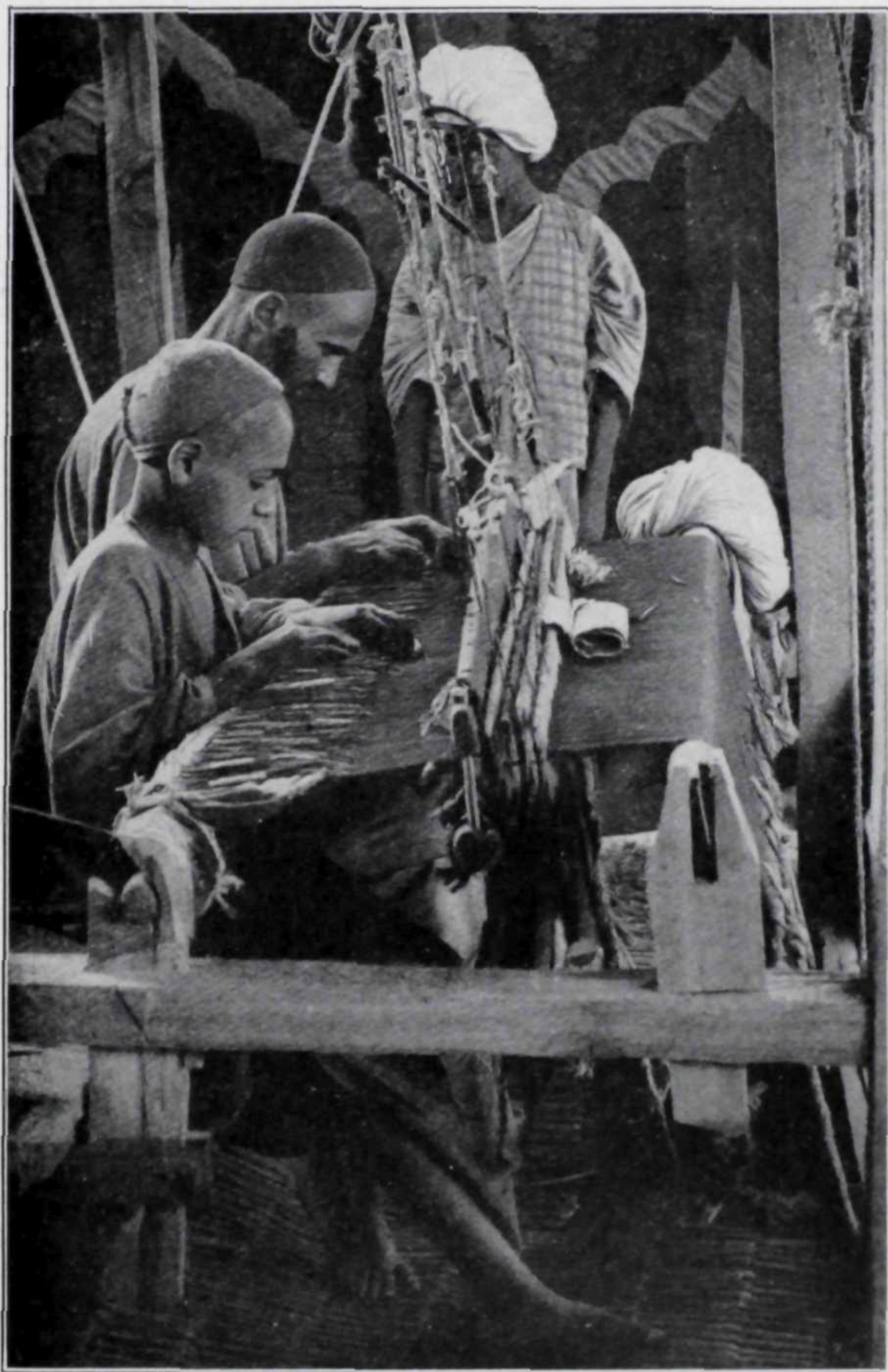
We who are living through the time of the birth of a new art, which may yet be as revolutionizing as the art of printing, cannot wholly foresee its possibilities. How much less must the future have been foreseen by one Eadweard Muybridge, whose hobby was to record the motion of animals? To get the effect he wanted, he took what we have now come to know as "stills", and projected them in sequence. It was primitive but it was a start.

Governor Leland Stanford, at his famous Palo Alto ranch in California, got the idea that he could mix the blood of the thoroughbred running horse with that of the trotter and gain speed but still keep the trotting gait. To analyze the gaits he got Muybridge to take pictures of the horses in action. Cameras were placed in a row alongside the track, as many as 24 being used, one after the other. Silken strands across the track enabled each horse to take its own portrait.

When the pictures were developed,—and this was in the early nineties—and were projected in rapid succession, they simulated action to a marked degree.

Even today, motion is indicated by successive suspended actions, about 16 to the second, each one momentarily exposed on the screen while still. The eye blends them into flowing movements.

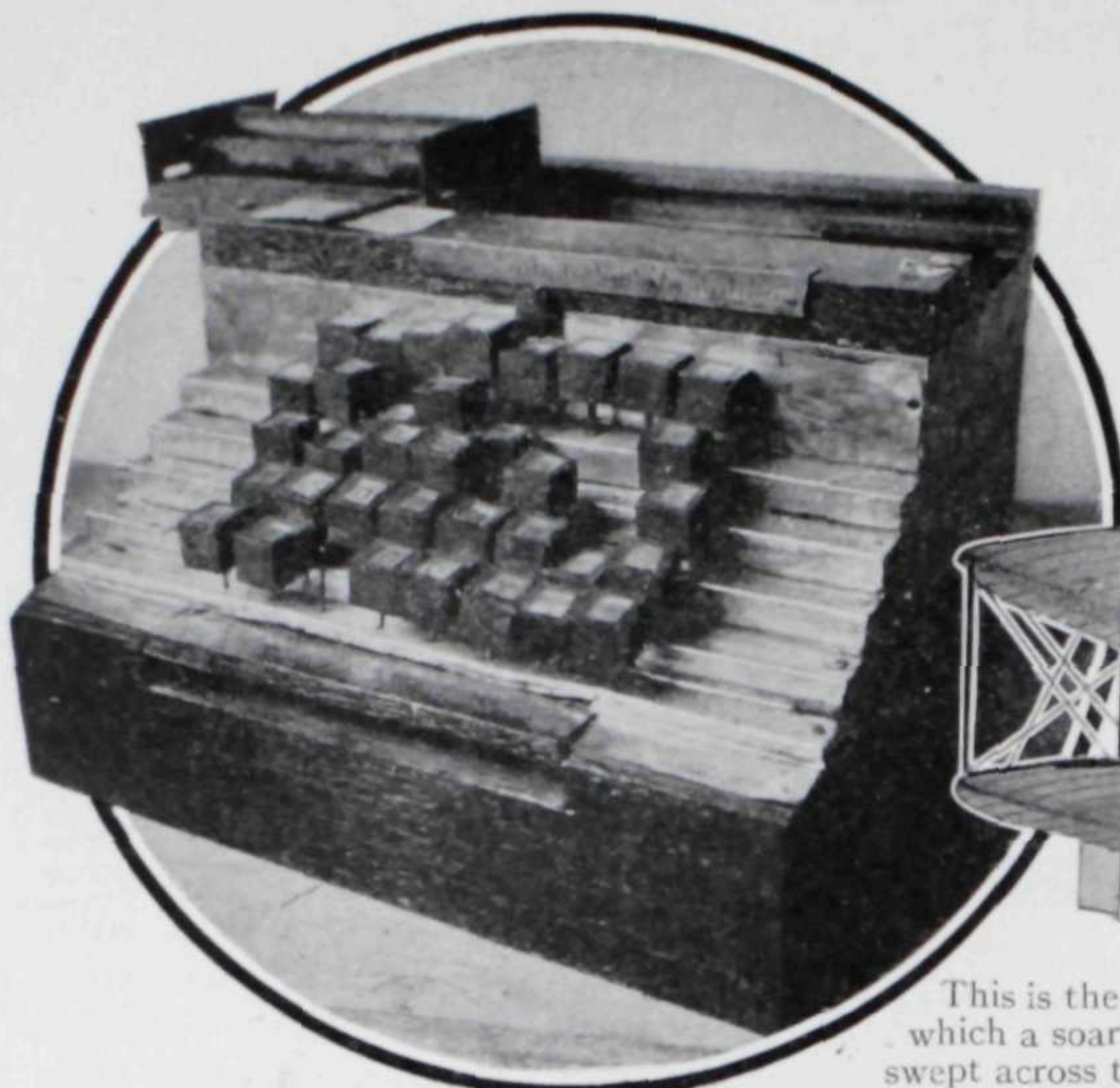
YET Muybridge was not the beginner of the motion picture idea. Long before his work, certain devices were arranged to show drawings or models in motion, though not by means of projection on a screen. Uchatius had done something of this sort in 1833, and in 1853 showed motion on a screen, using a revolving light which whirled successively behind a dozen pictures and gave a fair imitation of repeated motion, as the up and down beat of a bird's wing. In the next development the light was stationary and the pictures, on the edge of a large disc, revolved in front of it. Up to 1872 the pictures were made from drawings; then Muybridge made the photographic adaptation. Following him came a preacher, the Reverend Hannibal Goodwin; photography was his hobby, and



UNDERWOOD & UNDERWOOD

The primitive loom in Cashmere, almost as it was in the beginning, makes for the few the Cashmere shawl of luxury. Nowadays, power-driven, flashing shuttles turn our textiles in mile long lengths. We strip cocoons, shear sheep, and pick cotton-bolls by machinery

to this hobby we owe the transparent film. Then a Frenchman, Marey came to the fore by using the ribbon film, devised by Goodwin. After that the most practical applications came through the research of Jenkins and Edison in America. According to one authority, "to Edison alone remains the undisputed credit of having first produced commercially a camera for taking, and a projecting machine for exhibiting, motion pictures with celluloid film for the motion record."



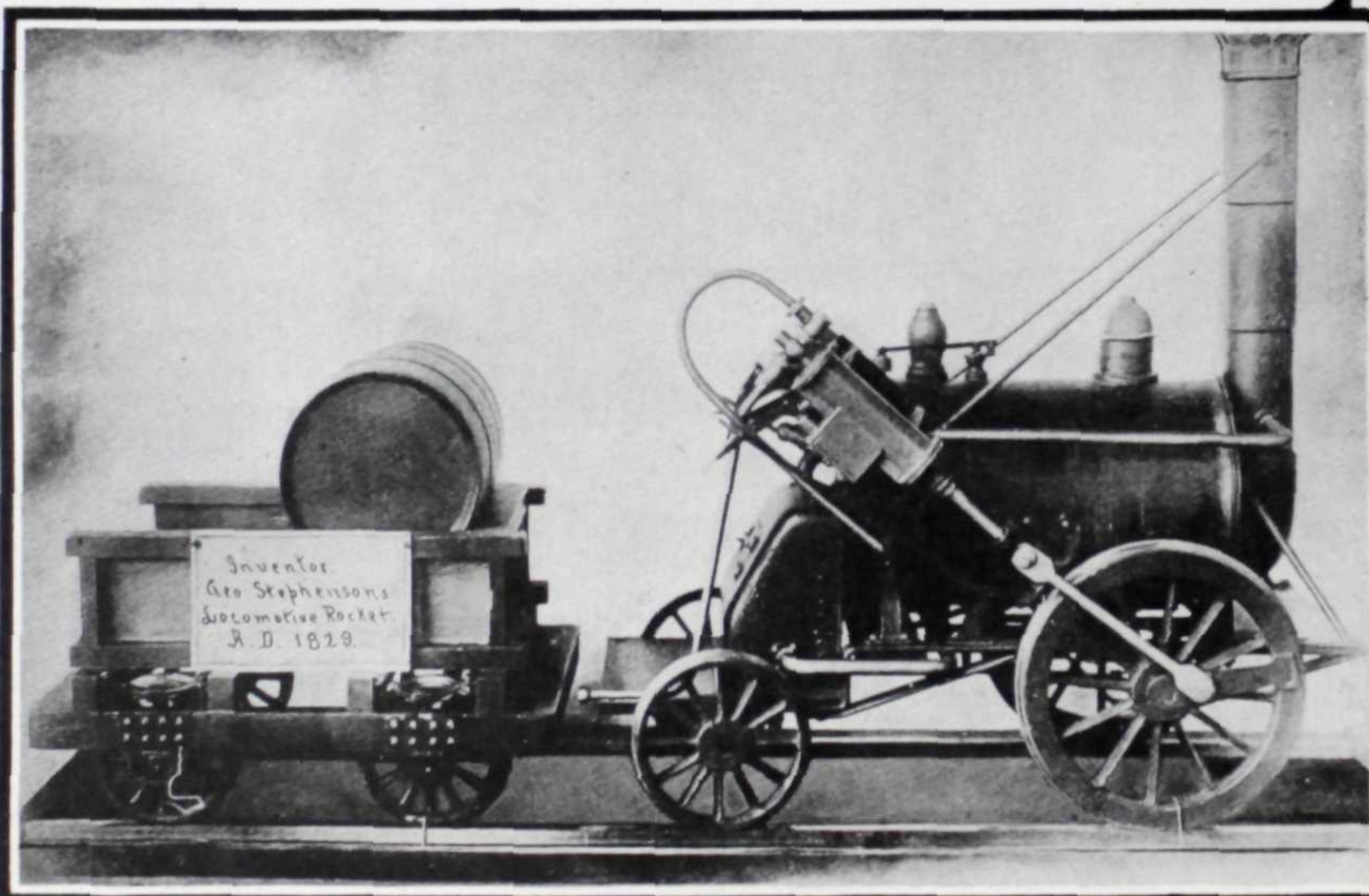
But for the perfection of the typewriter, antidote to "writer's cramp," from the first rude model, pictured here, the people of the United States wouldn't have mailed something like 20 billion pieces of matter in 1915, the postal receipts wouldn't have been close to 300 million dollars, and the postal service one of our giant businesses and the chief handmaid of commerce. Jules Verne never imagined anything half so mad as the truth about the revolution that the typewriter has wrought in the business world.



This is the Wright glider, on which a soaring new industry has swept across the horizon of commerce.



The enormous dimensions of foreign trade are possible because the steamboat taught the world the secret. The picture shown above is of Fitch's model, which antedated Fulton's.



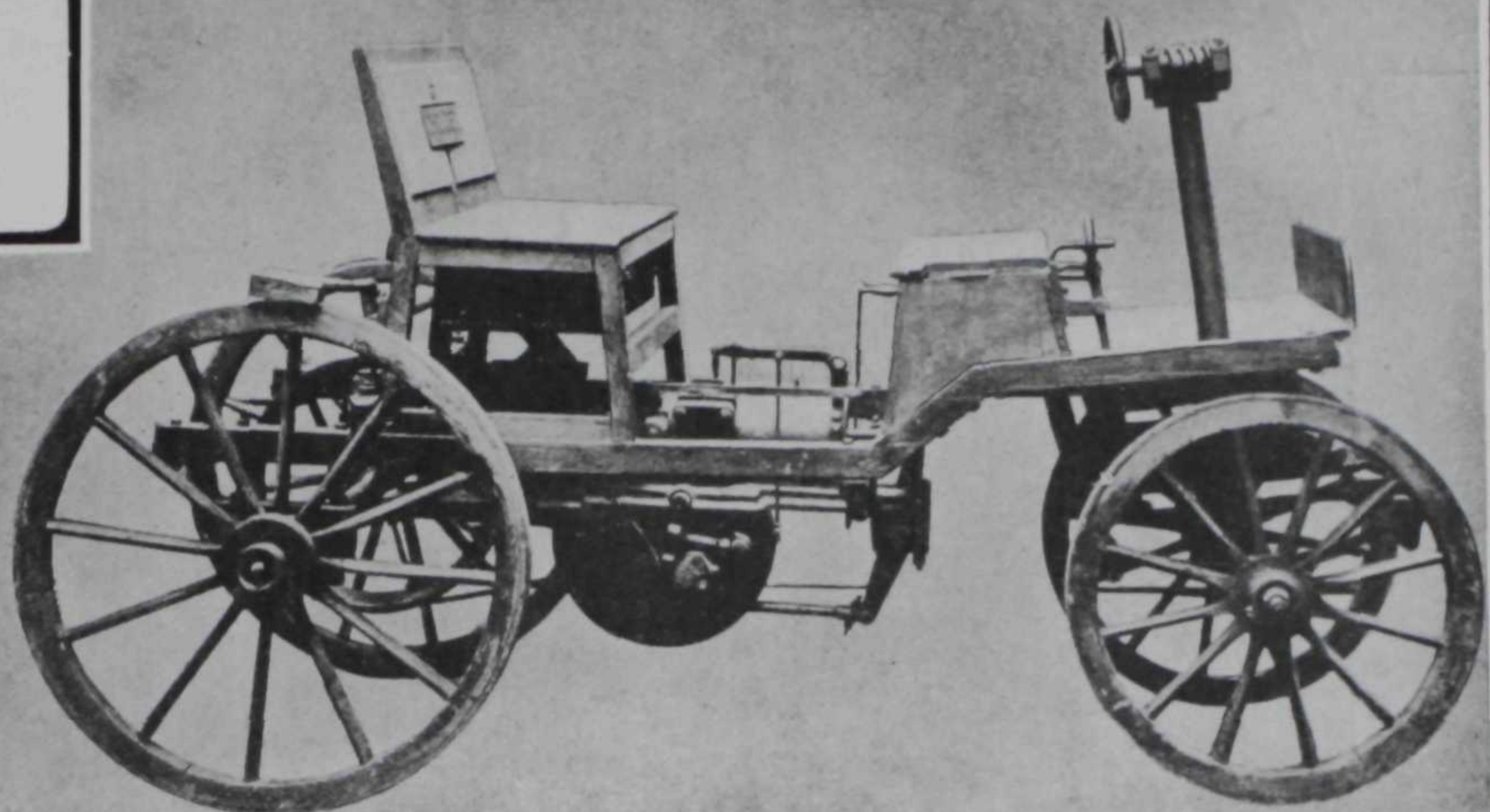
An old Scotchman derided the announcement that Stephenson's steam engine, the first model of which preceded the "Rocket" by four years, would cover a distance of fifteen miles an hour by asking what would happen if a "coo" should get on the track. There are now 60,000 locomotives in the United States alone and 4,000 new ones building a year, and the "coo" bells tinkle alarm as their owners scamper out of harm's reach. The railroads of the United States operate 250,000 miles of line, have gross revenues of three billion dollars, and net income of 800 million dollars.

Behold the
Transform
The World's

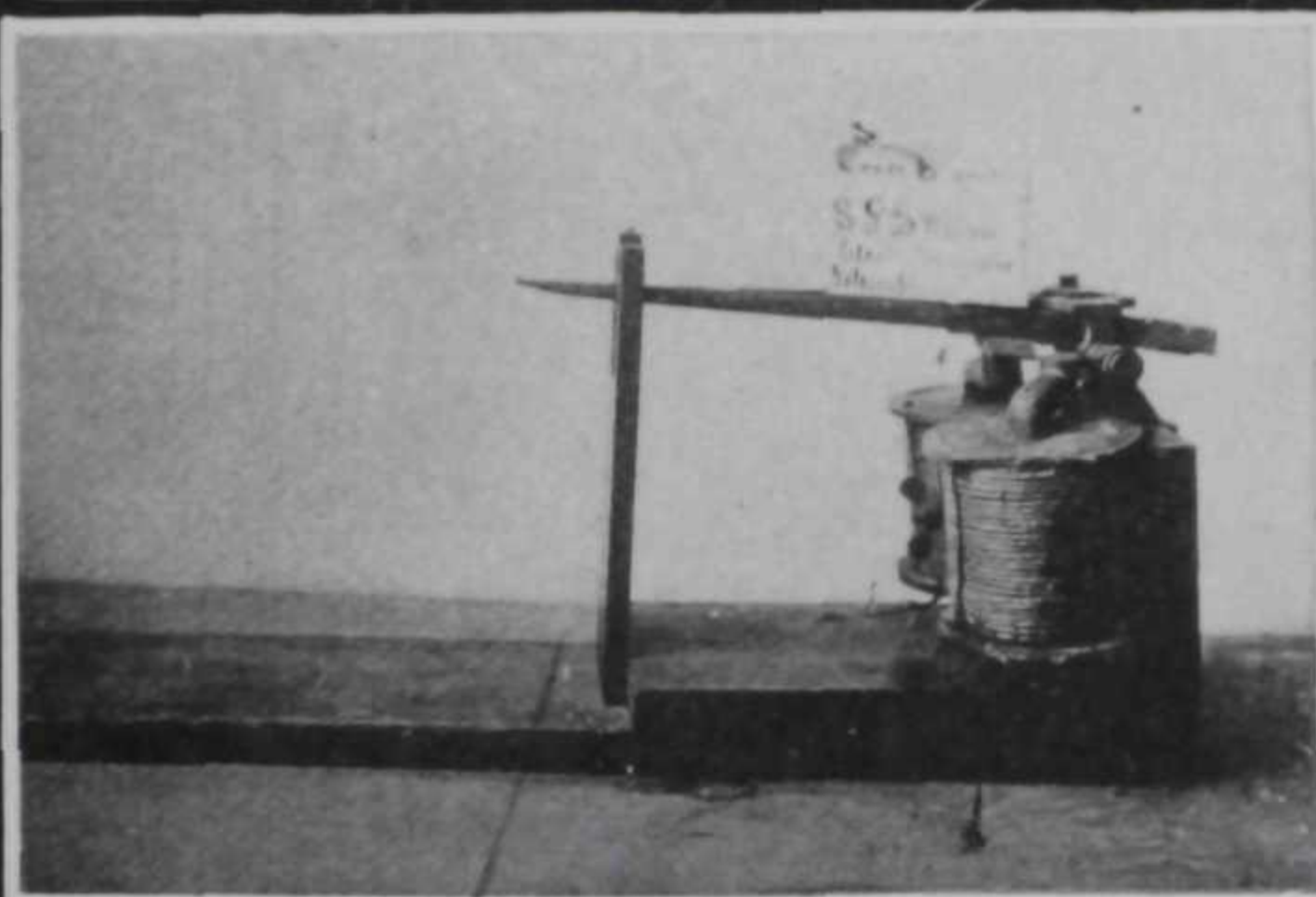


Consider what a marvelous work the inventor has done with his new devices of the past hundred years. His work has made our life and our play. Peace and war are made possible. Life itself has been made a thing far more comfortable. Industry and commerce have been created. New industries have been created, because of what the inventors have done, are Edison springs to our lips. He is inventive oftenest in connection with the incandescent lamp, the completed motor, shown above, patented in 1879.

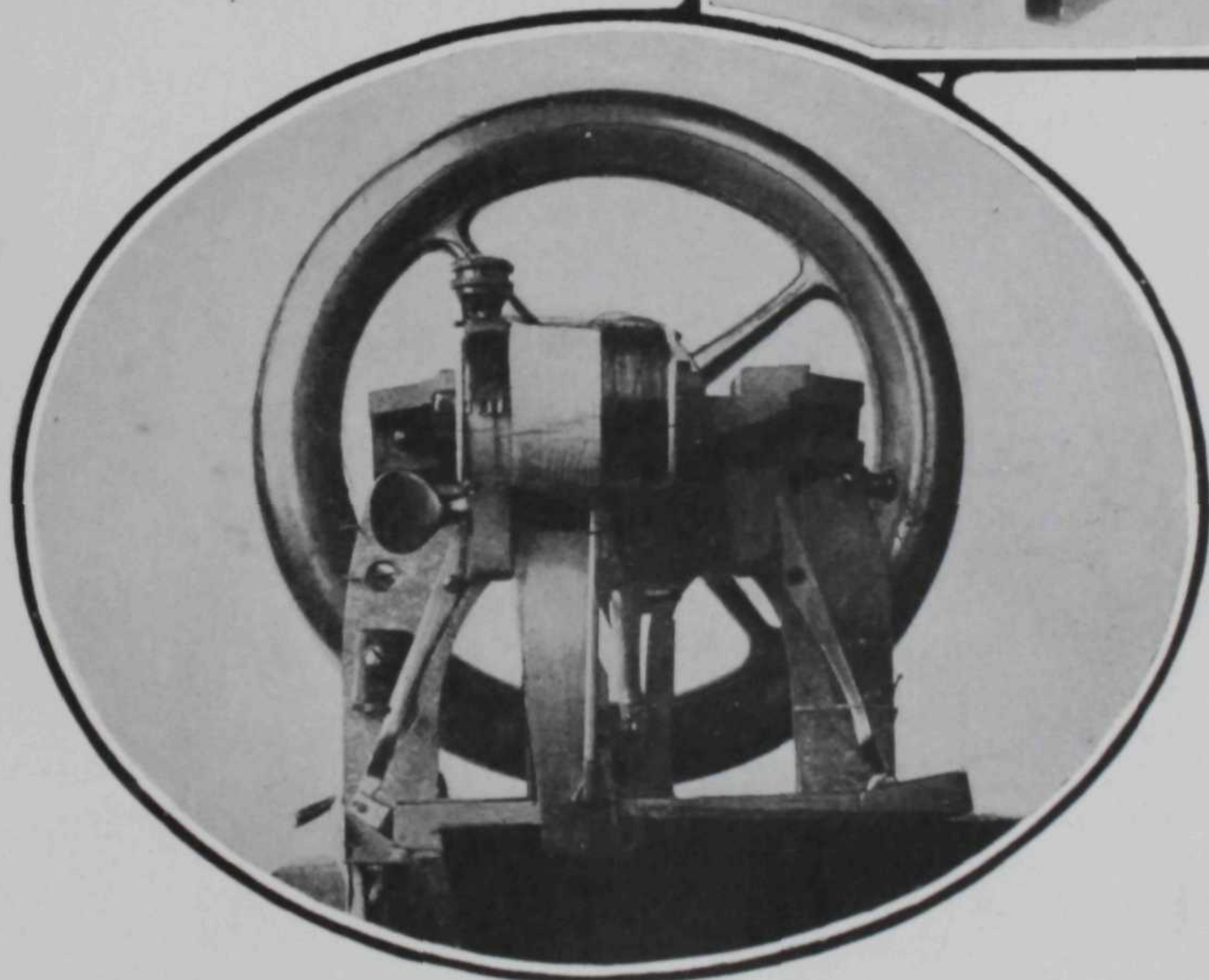
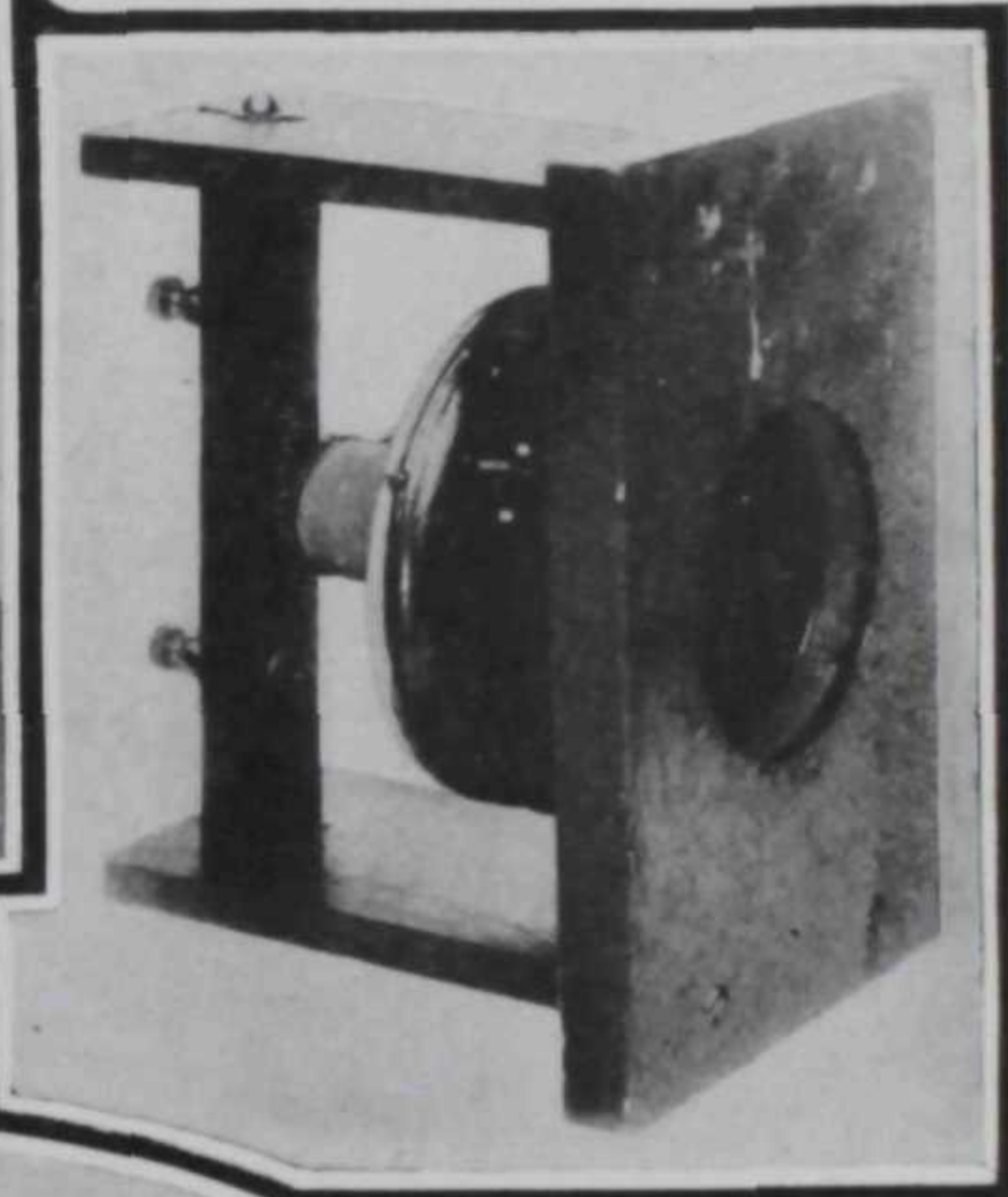
inventor!
 mer of
 Commerce



The automobile, "fat boy" of industry, born in 1894, is making a lot of noise in the world. There are already something like 4,000,000 of him, and this country added 1,600,000 to humanity's supply last year. Our picture shows one of the first constructed.



Above, first telegraph: to right, first telephone, speed rivals who have redrawn the map of commerce.



As Morse's telegraph and Bell's telephone changed the business habits of the world, Howe's sewing machine changed the fireside habits of humanity. The romance of the sewing machine has been hummed in every American home and in native huts in Borneo and the Aleutian Islands. But the effect of Howe's invention, the first model of which is shown above, has been no less profound in commerce. Its manufacture is one of the big industries of America and a leading item in our expanding foreign trade.

wrought. How he has changed the state of man by
 mpress, deep and lasting, is on our daily occupations,
 what they were; peace more luxurious, war more
 erent from what it was at the dawn of the nineteenth
 ged. They minister more surely, more fully to human
 ones transformed. Stupendous activities, possible
 monplaces of to-day. Spontaneously the name of
 l, as Napoleon was military skill. We think of him
 the electro-motor and storage batteries. His first
 he would not sell for \$1,000,000.

THE foregoing sums up this potent fact; that few of the great industrial inventions, few of the so-called beginnings, are created at once. Each is likely to be the result of a series of successive and long-separated steps. The final device rarely springs full grown from the mind of one man, as Minerva is said to have sprung from the brain of Jupiter. Incidentally, somewhere along the line, the name of Thomas A. Edison is likely to creep in, especially in the work of adapting theoretical ideas to practical uses. For example, he had a lot to do with the practical success of the talking machine, as already set forth in the past November issue of THE NATION'S BUSINESS.

Edison's two greatest achievements are in connection first with the perfection of the incandescent electric light, whereby, as the Irishman said, "he made a hair-pin burn in a bottle," and second, with electro-motors and storage batteries. His first completed motor, patented in 1882, he would not sell for one million dollars.

PROFESSOR Alexander Gray of Cornell University, claims for G. S. Moler, then student at Cornell, the honor of having made one of the first practical applications of the electric generator in America. This was in 1875, when the University was not more than seven years old, and Moler was not yet a graduate. Yet he illuminated the whole campus, and thus it came about that the inhabitants of remote farms among the hills of central New York saw the arc light shine at night years before the introduction of this means of illumination in Paris, London, Berlin, New York, or any other of the great cities of the world.

The first Edison hydro-electric station, which was just able to carry its load of only 250 incandescent lamps was, however, a direct promise of the present-day large stations, such as that at Keokuk, Iowa, where the whole upper Mississippi River, passing over one dam, furnishes some 200,000 horse-power, and will be increased to 300,000.

ELECTRIC devices do not by any means exhaust the list of those inventions which have had a profound effect on the world of business. Schoolboys used to have a set of self-answering questions, which helped them to remember the names of inventors. The two following may be taken as samples: *Howe* was the name pronounced in speaking of the inventor of the sewing machine? *Watt* was the name of the man who had much to do with the development of the steam engine?

Howe is everywhere given credit for the first practical sewing machine, and there are many persons now living who remember when the new-fangled device first came into use. In the small cities throughout the land, the wife of the leading citizen might have one of the new Howe machines, which meant that all her friends, relatives, and neighbors, and even mere acquaintances, sought chances to "come over and help with the sewing" so they would have the joy of running the patent stitcher. Most folks looked upon it as a toy meant for the especial

delight of the well-to-do, and few dreamed that it would be the basis of the great ready-made suit industry of the present day.

Elias Howe finished his first machine in 1845, and patented it in the following year; the present output of the clothing industry has a value of \$600,000,000 a year.

NOW that war has been declared, European nations are already looking to "the Yankees, whose well-known inventive genius will bring to the Allies an asset not to be measured in men, guns, or money." May we fulfill their expectations!—*The Editor.*

THAT other small portable machine, the manipulation of which is mainly in the hands of women, had a rather more complex development. The earlier typewriters were not meant for the purpose to which they are now put, but were to be used as punches, or embossers, for making raised characters on sheets of paper

to be used in books for finger-reading by the blind. The first patent dates back to 1714 in England, and the first American machine came more than a century later, in 1829, when W. A. Burt secured a patent. Nothing further happened toward the domination of the stenographer until A. E. Beach, in 1856, took out the first patent for the so-called "basket" arrangement of lever type, placed in the segment of a circle, delivering impressions at a common center.

With this start, and with the shifting carriage, came the machine from which the modern Remington was evolved. It was patented in 1867 by C. L. Sholes and S. W. Soule; in 1868 the first crude model was completed. The machine was first marketed in 1874, and the exhibition of the small writing machine at the Philadelphia Centennial of 1876, caused just as much talk as the monster model in San Francisco in 1915.

It was of this earlier machine that Horace Greeley said, "It may have some advantages in legibility, but it will forever be too slow." Aside from the fact that it is faster than any other generally legible writing, there was a peculiar significance in Greeley's comment. Apropos of legibility, the great editor of the New York Tribune was noted as being the most atrocious writer that ever put pen to paper. It was commonly said of him that he had three distinct chirographies: one that he alone could read; one that others could read, but he couldn't; and one that nobody could read!

The first practical business use of the typewriter was made by S. N. D. North, afterward director of the U. S. Census. This was in 1872 at Utica, New York. Of that experience he has said:

"I have often wished that I had kept that original machine, for it would have illustrated better than any other mechanism with which I am familiar the marvelous rapidity with which American ingenuity advances to the point of perfection in a labor-saving instrument, the underlying principle of which has been worked out. This machine was heavy and cumbersome in comparison with the delicate mechanism of today, but the principle of construction was essentially the same, except that the carriage, instead of being restored to position by the hand at the end of each line as now, was brought back by means of a foot pedal, and it came with a jar that made the machine tremble in every part. My machine did neither elegant nor uniform work, but after a week or so I was

enabled to accomplish all my editorial writing upon it."

Just as commentary on the advance in mechanism, the writer of this article used a machine that weighs only a half dozen pounds.

Of the large money interests dependent on the typewriter there exists no thoroughly adequate record; it is significant, however, that American typewriters to the value of \$100,000 go each year to China alone.

JUST a few figures to give some idea of the railroad business of the United States, before we consider its humble beginnings. These railroads operate 250,000 miles of line, receiving some three billions of dollars in gross revenues, of which \$800,000,000 represents net income. They employ nearly two million persons, who are paid one-and-a-quarter billions of dollars in annual wages. The United States alone has more railway mileage than any entire continent, except the one in which it lies. It builds about 4,000 locomotives a year, about 3,000 passenger cars, and about 150,000 freight cars. There are 60,000 locomotives in service, 50,000 passenger cars, and well over 2,000,000 freight cars. The gross railroad capital is \$20,000,000,000.

"Behold what a great matter a little fire kindleth!"

On September 27, 1825, less than a century ago, Stephenson's first railway train drew ninety tons of

English coal. George Stephenson is generally recognized as the father of modern railway engineering, though William Murdock made a toy locomotive before 1800; and Richard Trevethick of Cornwall, in the last year of the eighteenth century made a steam engine that ran along the road—a forerunner of the automobile, or rather of the traction engine. He took it out one night and coming to a toll-gate, asked what the toll was. The keeper, beside himself with fear of demoniac visitors, let it through free, "if it would only pass quickly!" It did.

Stephenson's train load of ninety tons, from Stockton to Darlington, was preceded by a man on horseback, who waved a flag to keep people out of the way. But before the end of the journey he, too, had to get off the track because this engine achieved a speed of fifteen miles an hour. The newspapers poked fun at the new method of locomotion, and one journal openly reviled it, saying: "You might as well expect people to let themselves be fired off on rockets, as to trust themselves to steam engines and railways." Stephenson took the word spoken in derision, and christened the first engine for a passenger train, to run between Manchester and Liverpool, the "Rocket." That was in 1829. Crude as the "Rocket" seems today, standing in a museum, it drew a train weighing 130 tons, at a maximum speed of 29 miles an hour.



UNDERWOOD & UNDERWOOD

Beginnings in steel were not unlike this present activity in Syria. Damascene steel is made to-day as it was in the Middle Ages, when the swords of Damascus were rivalled only by the blades of Moorish Toledo. Science and invention have given to modern steel, through the use of such newly recognized metals as manganese and vanadium, qualities undreamed of in the days when steel was the product of handcraft alone. Supremacy with steel is still the measure of power.

One year later Peter Cooper had a train running over the Baltimore & Ohio Railroad, between Washington and Baltimore, with an American-built engine, the "Tom Thumb." As soon as the success of the "Rocket" was demonstrated, several engines were brought from England, such as the "John Bull" and the "Stourbridge Lion", which now stands in the National Museum in Washington. Only a few years ago, when the great Washington Terminal Station was under construction, laborers at work on the foundations came upon the ancient strap-iron rails upon which Peter Cooper's first American locomotive had run. These rails were fastened to lengthwise stringers of wood, instead of to the cross-ties now in use.

In 1832 Matthias Baldwin built the "Ironsides", the beginning of the great Baldwin Locomotive Works. Its first engines weighed from four to six tons; the Mogul-Mallet compounds of today weigh 213 tons.

IF ENGLAND took precedence in the earlier development of railways, Robert Fulton, an American, is usually credited with the beginnings of the steamboat. Contrariwise, while the United States leads all in railways, it stands rather low in the steamship business, except for a present somewhat artificial advantage because Europe is engaged in war. In 1840 American ships carried 82 per cent of the freight between this and other countries; in 1860 it had dwindled to 66 per cent in 1880, 17 per cent; in 1900, 9 per cent. Yet the fleet of the United Fruit Company, now operating under American register, is an example of very successful management under American auspices. Practically all authorities are agreed that the present advances in American shipping bid fair to continue after the cessation of the struggle in Europe.

Yet the "Clermont", plying the Hudson in 1807, was the forerunner of steamship navigation the world over, although it was not the first steamboat, even in America. In 1790 a man named Fitch operated a steamboat on the Delaware River between Philadelphia and Trenton, making regular trips for four months, but finally abandoning the project for lack of public support. A successful boat navigated the Seine in 1803. The first trans-Atlantic steam vessel, the "Savannah", sailed from America in May, 1819. She might be carried across nowadays on the forward deck of the "Mauretania" without a great deal of trouble.

The self-propelled vehicle was foreshadowed by Trevethick, though Sir Isaac Newton proposed a steam carriage in 1680. In 1790 Nathan Read patented and constructed a model steam carriage; earlier than this even, a Frenchman, Cugnot, in 1769 and 1770, built two steam carriages, the larger of which is still preserved in Paris. Walter Hancock, an Englishman, during the dozen years between 1824 and 1836, made many hundreds of miles over ordinary roads with a steam car, and the second car which he built was the first to use the principle of the rear-wheel drive, the one in common use today.

Compare these isolated examples with the automobile industry of 1917. According to figures compiled in connection with the recent automobile show in New York City, this country alone produced 1,617,708 motor vehicles last year, which had a retail value of \$1,088,028,273. There are now not less than 3,500,000 motor

vehicles in actual use, and 150 companies are engaged in supplying the demand.

Most of this industry has been developed on the basis of patents granted George Selden, of Rochester, New York, in 1895. This was the beginning of the application of power from an internal combustion engine to the propulsion of a vehicle. Selden's original application for a patent was dated 1872. In 1893 and 1894, Elwood Haynes, particularly noted as a metallurgist who had made many discoveries in the field of alloys, perfected a "horseless carriage" from which many of the up-to-date cars are logical developments.

ONE STEP further in propulsion, and man invaded the air. We give the Wrights due credit, but even they had predecessors in aviation. The aspirations of man to emulate the birds present a long history. Whether we give credence to the mythological claims of Daedalus and Icarus, we must recognize the modern genius of Lilienthal and Langley, with heavier-than-air machines.

Lilienthal made many successful gliding flights between 1891 and 1896. These were without propulsive power, like the soaring of vultures or albatross. He sailed from a height and glided considerable distances. In 1896 he was killed in a biplane glider of his own construction. Langley applied mechanical energy to his glider, and all students of aviation agree that he was right in principle, the main difficulties being that his engine did not successfully combine small weight with large power, and his catapultic launching device applied the initial energy in a reverse order, for its first impulse was its strongest, with the power of the springs rapidly dying out as the aerodrome was ready to depend on the support of the air.

The Wrights at first removed this latter fault by using a pulley attached to a weight. As the weight fell from a scaffolding it increased in speed, thus pulling the plane forward by a constantly growing velocity until it was ready to depend on its own power. Nowadays, all planes get started from their own power, without outside aid.

The Wrights experimented in secret among the sand-dunes known as the Kill Devil Hills, near Kitty Hawk, North Carolina. The very name of the place seems coincident with those intrepid genii who would not be killed in their efforts to simulate the soaring hawk. They made successful gliding flights with biplanes equipped with rudders for vertical and lateral guidance. Here on a bleak seventeenth of December in 1903, they brought about the first instance of actual flight from the ground by mechanical means. Of their subsequent flights, by Wilbur Wright in France, where the airplane is such a factor in the present war, and by Orville Wright at Fort Myer, Virginia, most persons have a still vivid recollection. Curtiss, Farman, Santos-Dumont, and others had part on subsequent developments, but the Wrights are generally credited with the actual conquest of the air.

The European war is now supporting a very considerable industry in airplane manufacture. With improvements in the safety factor, aviation may become a common form of travel and transportation, where great speed is desired.

Man's greatest speed has been attained in the transmission of words. This is particularly fortunate since words are the cloaks of ideas, and ideas (*Concluded on page 37*)

Arming and Equipping the Dollar

He Has Numbers but He Needs Good Hard Training To Meet Johnny Bull Pound, Emil Franc and Fritz Mark on the Commercial Battlegrounds after the War

By HAMILTON HARPER

Decorations By CHARLES E. HOWELL

WE seem to be intrenched financially as firmly as it is possible for any human government to be."

So wrote the Comptroller of the Currency recently in closing his annual report to Congress. The report was a remarkable document. It bristled with formidable figures and fearsome tabulations.

It shows that we are wholly prepared for war, financially speaking; yet only one-half prepared for peace. Our industries and our dollars are on a war footing. And the dollars include more than one-third of the money of the globe.

For war purposes, that is all very well. All the precedents of history tell one story: *to the lusty nation with the long purse goes the victory.* But wars do not last always. After the sword is laid away there comes the financial struggle of wits for trade supremacy and financial domination.

In the inventory of our progress during the war, we find staggering totals. Here are some of the dizzy figures that bespeak the swift growth of our wealth during Europe's conflict:

We have on deposit in the banks \$26,376,000,000, an increase of \$5,000,000,000, or nearly twenty-five per cent in two years.

We have lent more than \$2,000,000,000 abroad since the war started.

During that period we have bought and paid for \$2,250,000,000 of our securities held abroad.

Our national banks alone had resources of \$15,333,000,000 at the end of December, an increase of \$3,976,000,000, or more than thirty-five per cent, in two years.

We have taken over a billion dollars of gold from Europe since the war started.

Last year we sold goods to the world worth \$5,400,000,000, buying \$2,400,000,000 worth in return.

The prime reason for our sudden prosperity is the war. But the prime reason for the conservation of our prosperity and the minimum of financial danger therein is

something very different from the war. It is the very instrument which will be our most effective weapon in the commercial struggle coming with the days of peace.

Had it not been for the Federal Reserve Act the chances are that we would have been financially torpedoed without warning. With the riches of the world poured

into our laps we would have been at first numbed by the very weight of it. By all the rules we should have entered next upon a disastrous period of inflation wilder than in the wildest days at the opening of the golden twentieth century. What we did was to pass calmly through a dangerous period of prosperity that offered every inducement to financial high-jinks. The tremendous flood of war orders and gold has failed to make us lose our heads. There has been no derangement of business, except at the immediate start of the war. The Federal Reserve Act, designed only to meet the normal conditions and the emergencies of peace and enacted at the time when Armageddon was but a dream and a

prophecy, has stood virtually every financial strain of the storm. It stands to-day unshaken, but it is not yet fully up to date. In some of its provisions it needs repairing and renewing. It has been our great help in meeting new conditions created by the inflow of gold. Soon it may have to aid us in meeting reverse conditions calling for a great exodus of gold. To meet this possible contingency, the Federal Reserve Board has broadly interpreted its powers in some respects, developed latent possibilities in others and suggested amendments to the act designed to strengthen it in still others.

In so doing it occupies the position of a council of war choosing its own battlefield and going over the ground, inch by inch, in advance. The forces we are to fight are engaged in a struggle of another sort. They are detained by pressing business and though we know they are coming, their first line of skirmishers has not yet been sighted.



An effort will be made to get the West to use paper instead of gold

If money is the root of all evil, gold is the very life of the root, for disregarding national bank notes and the comparatively small volume of our paper money issued on silver, virtually all currency in circulation is backed ultimately by gold.

There are two major classes of currency based on gold—gold certificates issued by the treasury, and federal reserve notes issued by the federal reserve banks. Even the much abused greenback is backed by about forty-five per cent of gold set aside in the treasury.

THE gold certificate is the declaration of the government that gold of its face value has been deposited in the treasury. It is backed, dollar for dollar, by yellow metal in the government vaults. The federal reserve note is a promise to pay, but this promise is not backed wholly by gold. For every thousand dollars of commercial paper discounted at a federal reserve bank, the bank may issue a thousand dollars in notes, provided the bank sets aside an additional four hundred dollars in gold. Hence it will be seen that four hundred dollars in gold if locked in the vaults of the treasury places in circulation only four hundred dollars of the class of paper money known as gold certificates. But if the same four hundred dollars were placed in the federal reserve banks, it would be available for use, when needed, as the gold reserve for a thousand dollars in notes, a net gain in paper money circulation of six hundred dollars.

Thus the man who carries gold or gold certificates during times of tension is hurting business to the extent that the gold he carries or the gold tied up in the treasury to guarantee payment of his certificates, is accomplishing only forty per cent of its possible usefulness.

It is extremely desirable, therefore, that the federal reserve banks be in a strong position to control as large a supply of gold as possible. Some of the ad-

vocates of the plan to accomplish this have gone to the length of drafting proposed legislation which would result in the use of paper through the West, where gold coin is in high esteem. This would be accomplished by forcing the circulating gold into reserve banks and keeping it there.

The gold would be forced by inducement. One proposal is that the government buy gold coin at its

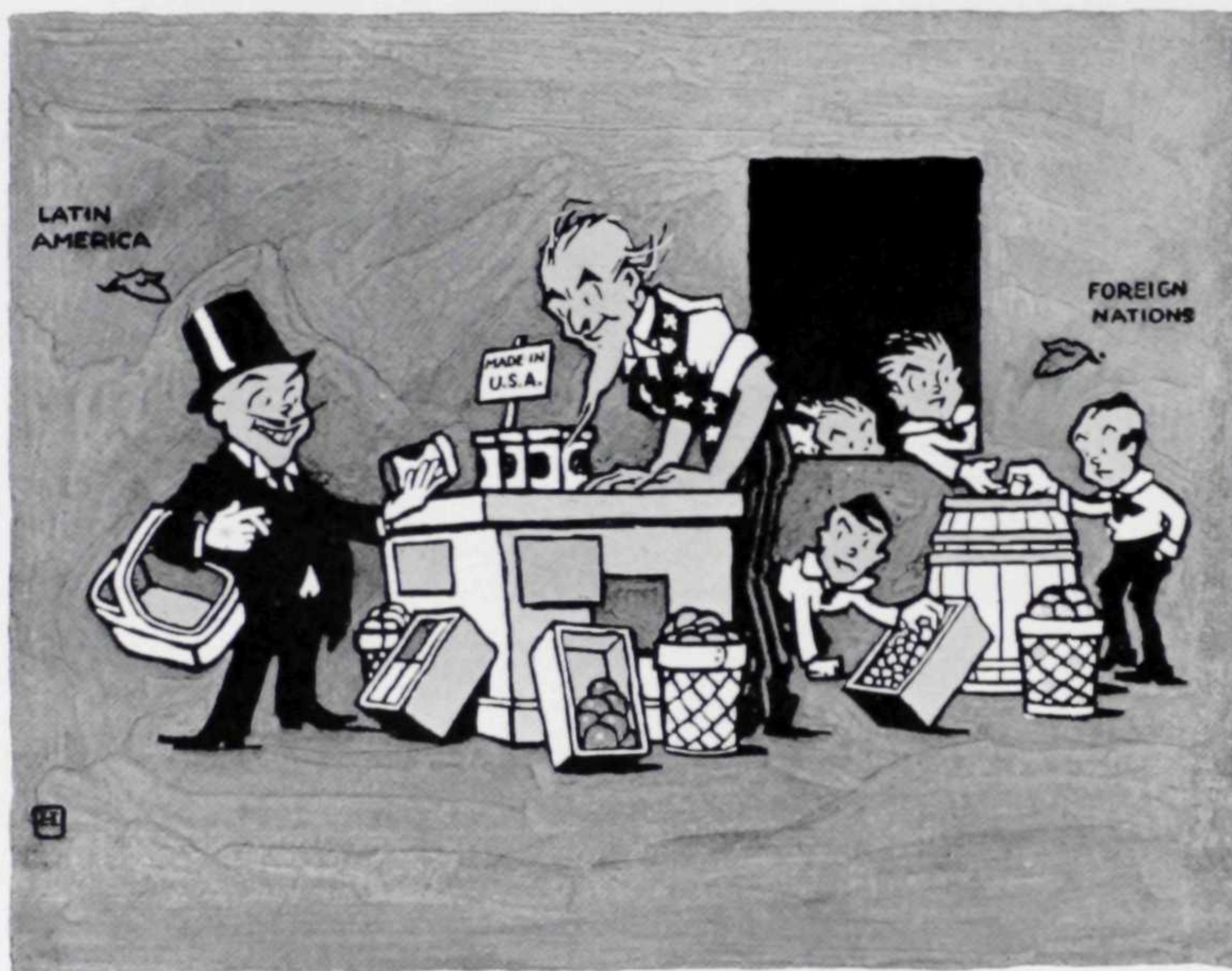
face value for a brief period, pocketing the loss in weight due to abrasion. Many ten and twenty dollar gold pieces are worth ten and twenty dollars in theory only. At the treasury they are redeemed by weight and sometimes the loss is more than ten per cent. Such instances are comparatively rare, the short-weight in the coins generally ranging from one to five per cent of their face value.

Figures compiled for the federal reserve bank at San Francisco, the center of the circulating gold coin belt, cast an illuminating sidelight upon the extent to which short weight gold coins are in use. They indicate that from ten to twenty per cent of the \$20 gold pieces are under weight; from thirty to fifty per cent of the \$10 coins; and from seventy-five to eighty-five per cent of the five dollar coins.

It used to be a common transaction for a bank to credit a depositor bringing in gold with the full face value of his coins. But many banks, notably in the West where the worn gold coin is most plentiful, have had to adopt stricter methods in self-defense and credit such depositors only with the weight value. The banks themselves can get from the government only the weight value of the coins. The government's mints refuse to receive any gold coin whatever that has been in circulation except upon a weight basis.

If the government were to buy all gold coins at face value for a time, it is thought that millions would be

drawn into its vaults. Nobody wants to part with a worn twenty dollar gold piece for, say, nineteen dollars in silver or paper money. And when the banks accept such coins at weight value only, as many banks are now doing, nobody brings worn gold coins to the bank. The only sensible thing to do is to pass it along to the next fellow and he passes it to the next. Thus the light coin spins along from year to year, losing weight as



The old gentleman may discover that it is bad policy to devote all his attention to one customer

it travels and fighting shy of the government's vaults where it would do most good.

No one is finding fault with the gold system; but what is sought is the bringing of gold coin to the place where it will do its full work. If it has to voyage back to Europe we will see to it that its passage will be impeded as far as desirable and attended by the minimum disturbance to our own financial system. To this end the Reserve

Board asked Congress to change the requirements so as to place an additional \$300,000,000 in gold with the Reserve banks.

No material changes in the amount of actual cash to be carried by member banks are contemplated, but statutory reserves are concentrated in Federal Reserve banks. The idea was that hereafter everything denominated as reserves was to be held by the Federal Reserve Banks. In addition to this a certain amount of cash had to be kept on the bank's own counter to meet the daily needs of those who wanted to withdraw money. The percentage of this was to be left largely to the bank's judgment, but it was assumed that it would have to be at least 5 per cent of deposits.

Pressure of other legislation prevented Congress from acting on this at the last session.

That is the first step toward securing our financial future. The second is the appointment of correspondent banks in foreign countries and outlying American territories.

The Bank of England was the first correspondent authorized, the Philippine National Bank the first appointed, and there probably will be many others. In the Orient these correspondent banks will be of incalculable value in helping us retain the commerce that has seeped our way since the war started. And all of them, when the wheels of the system are running smoothly, will help prevent the costly transfer back and forth across the seas of huge quantities of gold.

MOST of our checks pass through a clearing house on their way from the men who get them back to the bank accounts of the men who make them. Our foreign transactions may take on a similar course when the plan is perfected. It will mean virtually the establishment of an international clearing house where Uncle Sam is one of the presiding geniuses, and more than anything else it will help in keeping the world's coin where patriotic Americans think it properly belongs.

Suppose that the manufacturers of England sold us woollens, cloth, machinery, etc., to the amount of ten million dollars more than our bill to them for meats, foodstuffs, etc. The money is due and England wants her pay. Under the old system, we would generally box up ten million dollars in cold, hard gold and ship it over to her by steamers. In addition to the trouble and expense there was the risk that the liners would never reach port.

The chances were that within six months, after her fleet of merchantmen had sailed eastward with American grain, she would owe us ten million dollars or more and

that we would demand gold. And the treasure ships would then bear the precious metal back to us again.

Suppose that the gold were needed in this country as the basis of currency issued to manufacturers to help sound enterprises. If we have the gold we can lend the money; and if we haven't the gold, the manufac-

turers can go for the capital to England. And if they have to wait, banker, salesman, workman—everyone around the circle suffers.

Say that the loan already had been issued in this country when England called for the ten million. The banks might have to call the loans because of the gold being shipped away. Thus, it would be entirely possible for a hundred million dollar gold shipment to England to result in calling \$250,000,000 in loans in this country. And six months later, after the harm had all been done, back again would come the gold, possibly in its original packages.

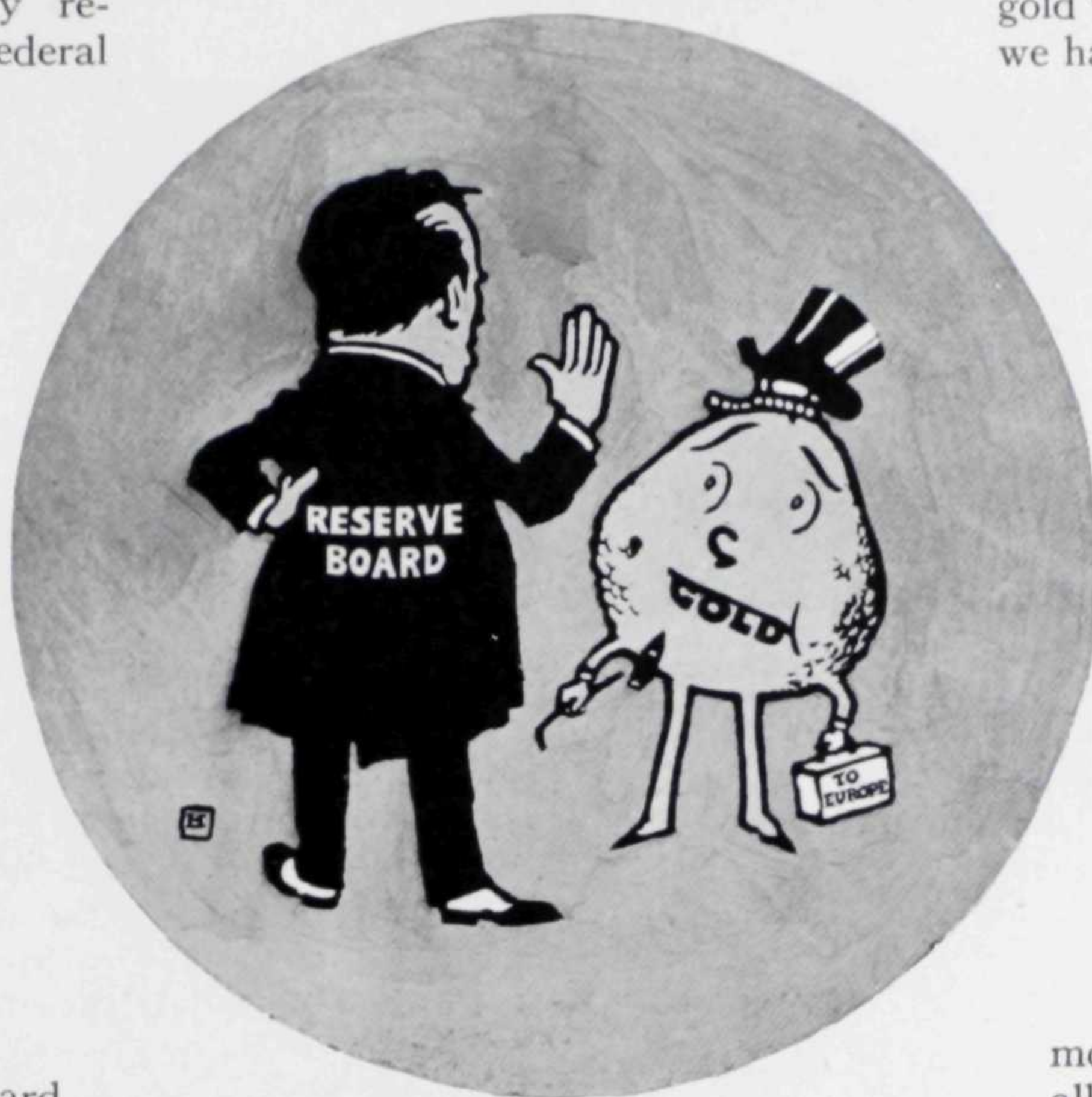
The appointment of foreign correspondent banks will enable the Reserve Board to teach our wandering gold to stay at home. It will tend to stabilize foreign exchange—that intricate indicator of international financial relations which always must be kept within narrow predetermined limits upon penalty of all sorts of mischief to trade.

There are other details that the Board is working out, but the two named above lead their brothers in international importance. They will go far toward placing the United States on a basis of sound financial preparation for whatever the future may bring. They provide the foundation on which may rest the machinery of international commerce which our traders must keep in healthy motion.

South Africa feels pretty much puffed up over its cost of living. According to its way of figuring, the increase in two and a half years has been 15 per cent within its borders, 45 per cent in England, and 55 in the U. S.

Argentina has recently increased the vigors of its customs regulations in some ways. A British ship captain is complaining because he was fined for omitting a canary bird and its cage from a declaration of the stores his ship had on board.

Coaling stations around the world present problems to steamship men these days. Starting a steamer for a destination half around the world and being sure she can pick up supplies of coal on the way are two different matters. Liners requiring 2,400 and 3,000 tons of coal have recently been kept at New York several days past their sailing time, because coal was not to be had.



We must make our wandering gold stay at home

Here's What Coulby By Operating His Ships on the Theory that Machinery without Men Isn't Worth a Whoop, He Made His Crews of Fresh-Water Tars the Best in the World

By JAMES B. MORROW

A YOUNG Englishman in Cleveland—he was twenty, and the action here to be related occurred thirty-two years ago—answered in person an advertisement that he read in a local newspaper.

John Hay, son-in-law of one of the wealthiest projectors of railroads in the Central West, afterward to be Secretary of State in the Cabinets of McKinley and Roosevelt, was the advertiser. He was then writing, with John G. Nicolay, the life of Abraham Lincoln and wanted a stenographer.

A bargain was made and Harry Coulby, the young Englishman, went along, when John Hay, better to facilitate his work, removed to Washington.

Later, simultaneously, two opportunities came to Harry Coulby. A department of the National Government made a bid of \$1,800 a year for his services. Accurate and intelligent shorthand writers were not as numerous in those days as at present.

From Cleveland, a letter of Samuel Mather, an ore and iron merchant and the brother-in-law of John Hay (Mather and Hay having married Amasa Stone's only heirs and daughters), offered Harry Coulby a salary of \$50 a month, but contained no commitment, open or implied, as to the future.

The National Government promised a tenure that was practically lifelong, with easy hours, sure pay, many holidays and honorable employment. Rare is the boy, English- or native-born, who will hesitate to accept a comfortable and perpetual berth in the indulgent and leisurely services of the American republic.

Work on John Hay's history was done. "The Washington ladder was short," Harry Coulby said to the writer of this article; "the Cleveland ladder was long. I knew which to take. In such a matter, my judgment now would be no wiser than it was at that time."

The climb upward was slow and arduous. No one helped Harry Coulby—but himself. In that, he was not disappointed. All that he asked was a chance, and a chance, he now says, "is enough for anyone, especially in the United States and in the twentieth century, where and when the opportunities for young men are better than at any time since Christopher Columbus set foot on the shores of America."

"We read," he remarked, "that there are more \$10,000 jobs than there are men to fill them. The statement is true, positively."

In time, Harry Coulby became Samuel Mather's

partner. They owned mines and ships and sent coal up the Great Lakes and brought iron ore back. When, in 1904, the United States Steel Corporation sought the skill and energy of Mr. Coulby he was a wealthy citizen of Cleveland and the active man in his firm.

Crews on the ore steamers of the Steel Corporation were full of fight. Conditions on the docks were tangled and otherwise bad. Mr. Coulby was asked to reorganize the fleet. He is tall, has massive shoulders and a strong but kindly face. Physically and intellectually he was thought to be the one man in the world to hold and administer the difficult and hazardous task.

More than he was expected to do has been accomplished. Once the policy that he originated and developed is carried out—on land and water, in mines, mills, stores and offices—the happiness and prosperity of all classes of labor will be increased, together with their ability, energy and fidelity.

Men, Mr. Coulby has shown, in his management of a hundred vessels and of 3,000 sailors and dock workers, are more necessary than machinery. There is hope—perhaps there is a happy solution—in the discovery.

"The human side of business," is the way in which he phrases and explains his policy. Nominally, Harry Coulby is the president of the Pittsburgh Steamship Company, which is the lake arm of the United States Steel Corporation. In reality, he is a philosopher and a scientist in the rough domain of commerce and industry.

Common sailors, captains, mates and clerks call Mr. Coulby "the old man," but always with respect and admiration. He is fifty-two years old. Some of his captains are sixty-five. But he is "the old man" on all his ships and in each of his offices—"the old man" who gives every other man a square deal, but no favors in matters of business.

Opportunity is the keyword of his management. It includes everything. Likewise, it is the word that causes his brown eyes to flash with enthusiasm and his reluctant speech, precisely American in its accent, to grow animated. Wanting a frame of facts in which to put his methods of dealing with men, the writer asked him about the steamship company.

"The United States Steel Corporation," he said, "took over the vessels of the various enterprises that it purchased in 1901. That was the beginning of its present fleet. The Steel Corporation, as it is commonly known, transports its own ore, largely in its own ships, from Lake Superior to the south shore of Lake Erie, and then



carries the ore over its own railroad to its own furnaces in Western Pennsylvania.

"Many old vessels have been sold during the past sixteen years. They have been replaced by new and larger ships. The new ones were paid for in cash out of the earnings of the corporation. A large ship sails eleven miles an hour when loaded and twelve miles in ballast. The ballast is water—8,000 tons to the ship—and is carried between the vessel's double sides and bottom. Thus navigation in all kinds of weather is made safe and comfortable.

"Our class A vessels are six hundred feet long, fifty-eight feet wide and thirty-two feet deep. One of them carried a cargo of more than 12,000 gross tons. A gross ton is 2,240 pounds.

"Put it another way, the cargo would have filled three hundred railroad cars. It was equal in weight to 480,000 bushels of corn, or to 448,000 bushels of wheat. The average yield of corn is twenty-five bushels to the acre; of wheat, twelve bushels.

"In other words, it would have taken a 19,200-acre corn field, or a 37,333-acre wheat field to have loaded the vessel.

"Our best ships sail 60,000 miles during the season. Ten round trips for an ocean liner is a good year's work. The distance covered is also 60,000 miles. But the length of our season is only 220 days. Ocean liners lose time in loading and unloading. We don't. We have unloaded 9,440 tons of ore in three hours and fifteen minutes. The work was done by electric machinery.

"Nine thousand, three hundred and sixty-two tons of ore have been loaded in twenty-five minutes, the ore pouring in at every hatch the whole length of the vessel. It is 800 miles from Lake Superior to the lower ports on Lake Erie. Eight days are required to make a round trip.

"The big steamers burn two hundred and fifty tons of coal on the passage up the lakes and back, but we have the cheapest transportation in the world. We haul a ton

of ore 1,000 miles for less money than is paid by city folks for having a ton of hard coal carried from the sidewalk to the cellar.

"From first to last the National Government, I suppose, has spent \$50,000,000 on lake channels and harbors, thus making it possible for great ships to haul great loads. All of the money and more has been returned to the public, to the 'ultimate consumers,' in the form of reduced freight rates.

"The Great Lakes are misunderstood by the public. They are big inland seas and have a direct influence on the freight rates of railroads—keeping transportation prices down to a keenly competitive level.

"The development of lake shipping has been among the wonders of modern times. I remember the iron ship *Onoko*, which was a revelation when it was launched and began doing business. It carried a cargo of 2,200 tons of ore. If it got into port on Monday and was unloaded by Saturday, owners and captain thought they had done remarkably well. Horses pulled the ore out of the hold in buckets.

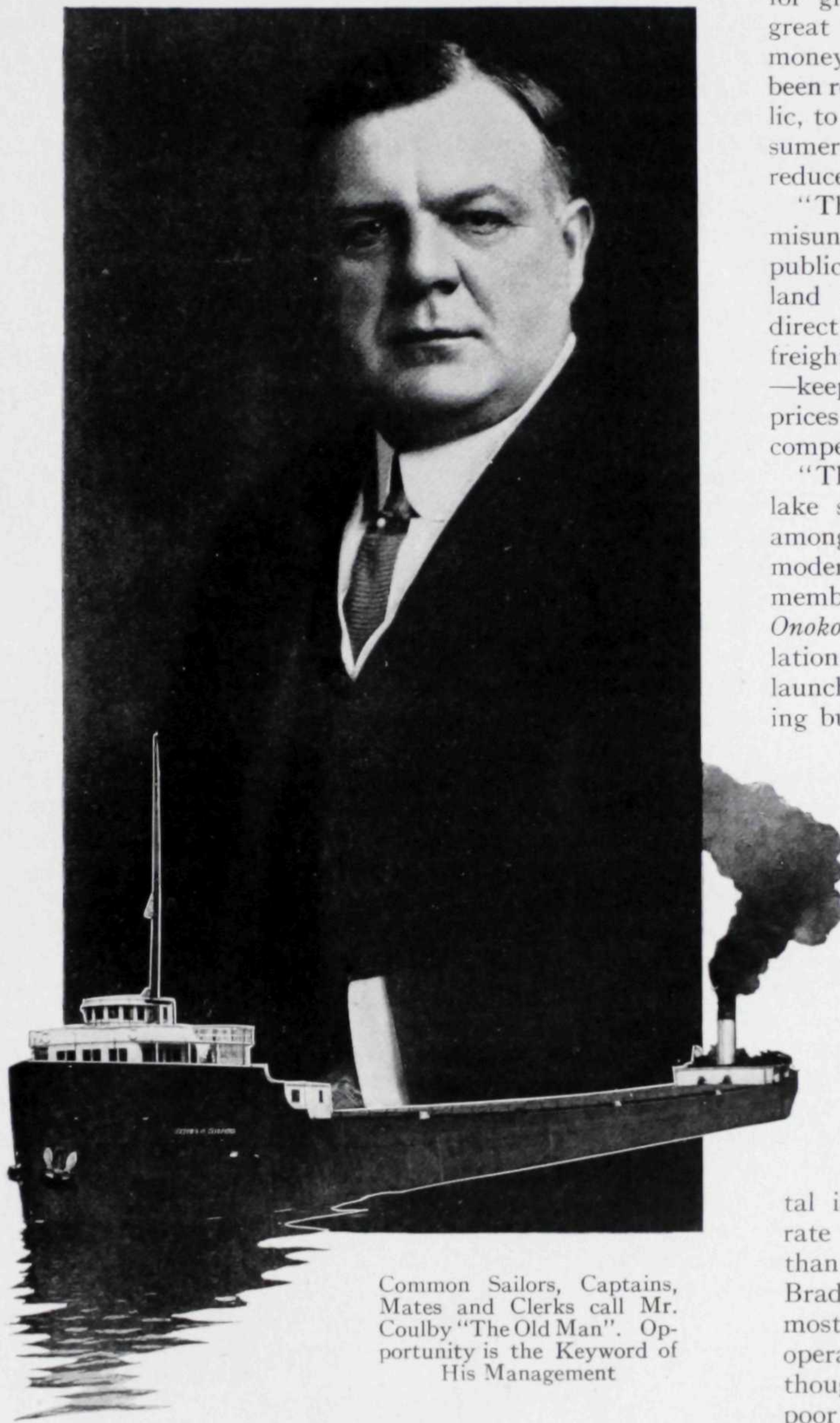
"Yet ship capital is earning a lower rate of interest now than formerly. Alva Bradley, in his day the most conspicuous vessel operator on the lakes, thought business was poor when he failed to pay for a schooner out

of the profits of two seasons. Dividends were large in the old days; they are small now. The people are pocketing the difference."

"You do not permit captains or engineers," the writer said, "to serve on vessels regularly after they are sixty-five years of age?"

The question started Mr. Coulby's talk about what he calls "the human side of business."

"A man of sixty-five," he answered, "has lost some of



Common Sailors, Captains, Mates and Clerks call Mr. Coulby "The Old Man". Opportunity is the Keyword of His Management

his elasticity. A young man of forty or forty-five is like a piece of new rubber; he snaps back when stretched out by unusual anxiety or labor. An old man must have time in which to recover.

"Our captains are required to navigate their vessels through rivers, in fogs and gales and during storms of rain and snow. They are frequently on their feet from twenty to thirty-six hours continuously. Three or four hours of sleep will bring them back, if they are young. If they are old they may not come back for a week.

"When a captain reaches the age of sixty-five, therefore, we pay him a fixed price for the season and let him substitute during pleasant weather for regular captains who are off duty. But he is never permitted to command a vessel toward the end of the navigation season when bad weather is a common occurrence. Nor would he have the opportunity.

THE regular captain of a ship would not think of staying on shore when storms sweep the lakes and sailing is full of personal danger. Were he to do so, his mates would instantly declare that he was suffering from 'fallitis,' which would be their way of saying that he was a coward. At the age of seventy every captain is permanently retired on a pension.

"There is a human basis," Mr. Coulby continued, "on which to work industrially, now and in the future. We organize tremendous corporations and sometimes forget the men who are to make the corporations a success or a failure. We only see the financiers and managers.

"Take my own business as an example. The Government deepens our channels and improves our harbors; marine architects build us monster ships; engineers invent marvelous loading and unloading machinery, but such things are not sufficient in themselves. We must have harmony, enthusiasm and hope among the men who do the real work. *Esprit de corps* has won all the victories of history, in war and business and always will.

"The human being in these days of immense combinations must be considered more than has been the rule heretofore. On December 31, the average man looks back over the year. He thinks, if he is a normal individual, that he might have done better. He faces the new year in confidence.

"The fair day in life is always tomorrow. When a man has no tomorrow, he slips back into yesterday or last week and his case is hopeless. If I have a clerk who is satisfied to be a clerk, I get rid of him. When a mate tells me that he never wants the responsibilities of a captain, I strike his name sooner or later off the pay roll.

"All things are possible in business to those who understand human nature. I include in the term 'all things,' such matters as efficiency, economy, team work and success.

"I say, and in pardonable pride, I hope, that the Pittsburgh Steamship Company has the best type of sailors in the world; that they receive, in normal times, higher wages than any other sailors in the world; that they have better food and quarters than any other sailors in the world, and finally, and, as an inevitable result, that they are hauling freight at a lower cost per ton per mile than any other sailors on earth.

"If you ask what methods the management has followed, I reply that with us every man from a deckhand up is given an opportunity to grow. What is done on a ship in this respect can be done in a factory, in a store, or on a farm. There are no easy berths with us. No man is coddled. We say: 'Here is the opportunity. It is up to you to make good.'

"A country boy applies for work. We put him on a vessel. If he is alert, intelligent and ambitious, he can be a wheelsman at the end of four or five trips. Or he may begin as a fireman and soon be advanced to a place among the oilers. An oiler is headed toward an engineer's position; a wheelsman toward a position of command on deck.

"We have two schools in winter—one of engineering and one of navigation. Our young men can attend them without a penny of cost to themselves. We even supply the books. By and by the student passes the Government examination. The oiler gets his papers as an assistant engineer; the wheelsman gets his papers as a mate. We have given them the opportunity. That is all we ever do.

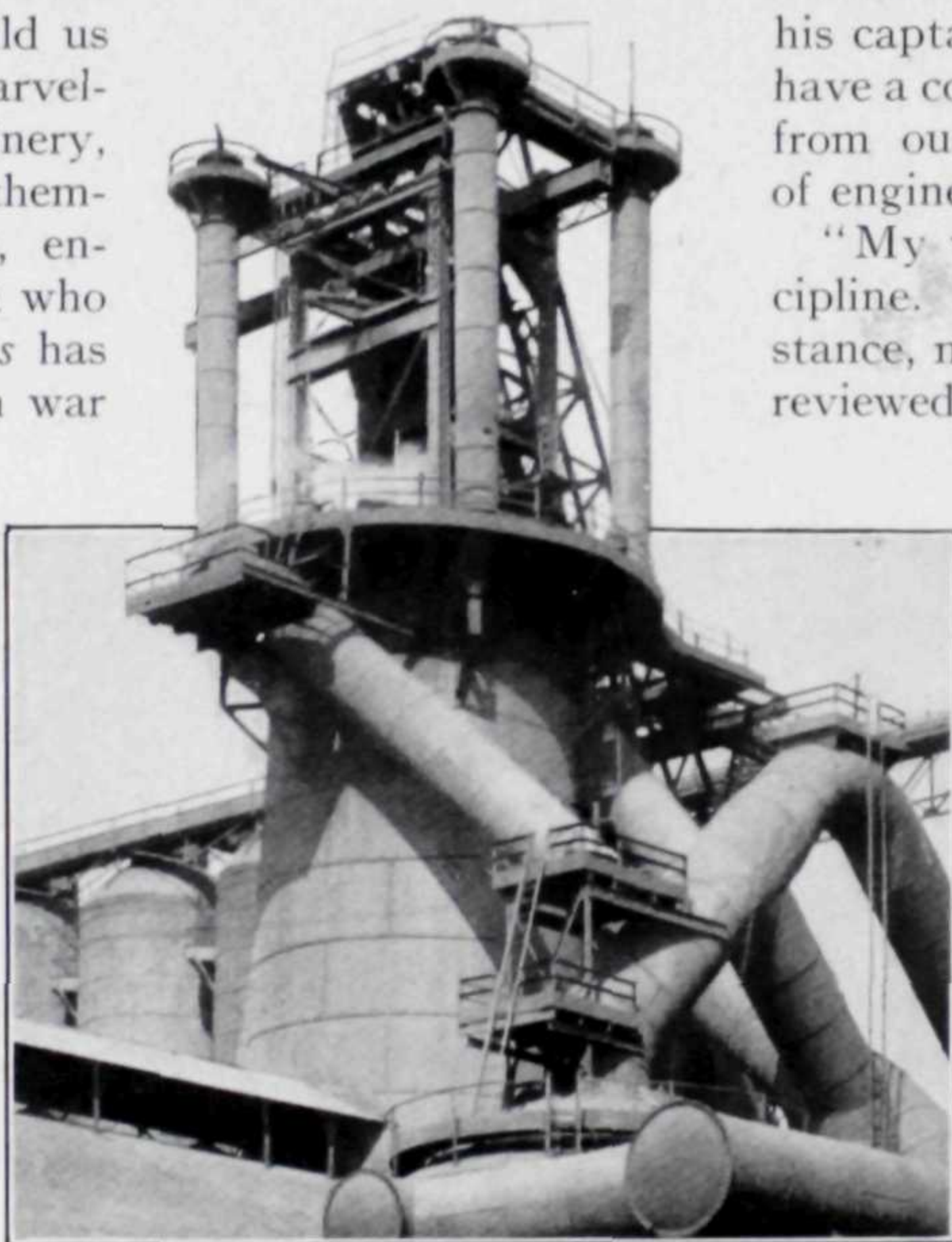
"Now let us follow the young fellow who is to become a mate. He has been a promising man and his captains have spoken in his praise. We have a committee of twelve captains selected from our largest ships; also a committee of engineers.

"My word is final in all matters of discipline. In other cases, accidents, for instance, my decisions, based on facts, can be reviewed by the captains or engineers, who are practical men, and, on obtaining additional information, may find that I am in error.

"Coming up for promotion, the young helmsman is passed on by the committee of captains. His commanding officers have been required to send me reports concerning his conduct and work. The captains are on record, you see, and no one of them can get suddenly sour and disapprove of the helmsman's advancement. Thus he is safeguarded against hasty prejudice and any eleventh-hour hostility. Later, after he is a mate, the

same system of records sent to me every two months insures him justice and fair treatment.

"Having been approved, the young man is sent to one of our smallest ships as second mate. He is not permitted to sail more than one season with the same captain. Thus we prevent favoritism being shown to him, and at the same time prevent the captain from learning



to depend on him and from shirking his own duty.

"Gradually the young man passes along as second mate from the smallest to the largest vessels. Then he is advanced to the position of first mate, going back again to a small vessel and working his way upward to a large one. Next, he is a captain and must once more go to the tail of the fleet. Engineers pass through a similar course of progression.

"Our men are always in motion. No man anywhere can remain stationary. He is either going forward or is slipping backward. Promotion with us depends first, on length of service, and, second, on things done, as shown by the record. But length of service counts for nothing unless it is backed up by facts and figures.

"After we had provided a scheme of progression for the men of the ships, we found that the captains who were drawing the maximum wages had been forgotten. They had stopped and were in a bad position for themselves and the company. So we established a schedule of bonuses for Class A captains, based on a season's record for economy, efficiency, harmony among the crew and so on. A bonus can amount to \$400. A captain, accordingly, can increase his earnings. He need not stagnate. We open the door to opportunity. If he delivers the goods he gets the extra money.

"Moreover, we have a traveling inspector to look after the interests of deckhands and firemen. Libraries containing books on engineering and navigation, biographies of great Americans and standard works of fiction have been placed on our newest boats.

"We pay our men checks instead of cash, and encourage

them to open savings accounts with a Cleveland Trust Company. At the end of each season of navigation our captains and engineers have a week for conferences, with a banquet along about Wednesday.

"There is plain talk by everybody. I say: 'A future chief engineer of the fleet is present, also a future general manager, and, possibly, a future president of the company. I do not know their names, but they are here.'

"Also let me say that we permit no unnecessary labor on Sunday. Ships under steam keep moving, but if a vessel has 500 tons of ore in its hold on Saturday night or needs 500 tons to complete its load, work is stopped until Monday and it remains tied to the wharf. We believe in one day of rest out of seven."

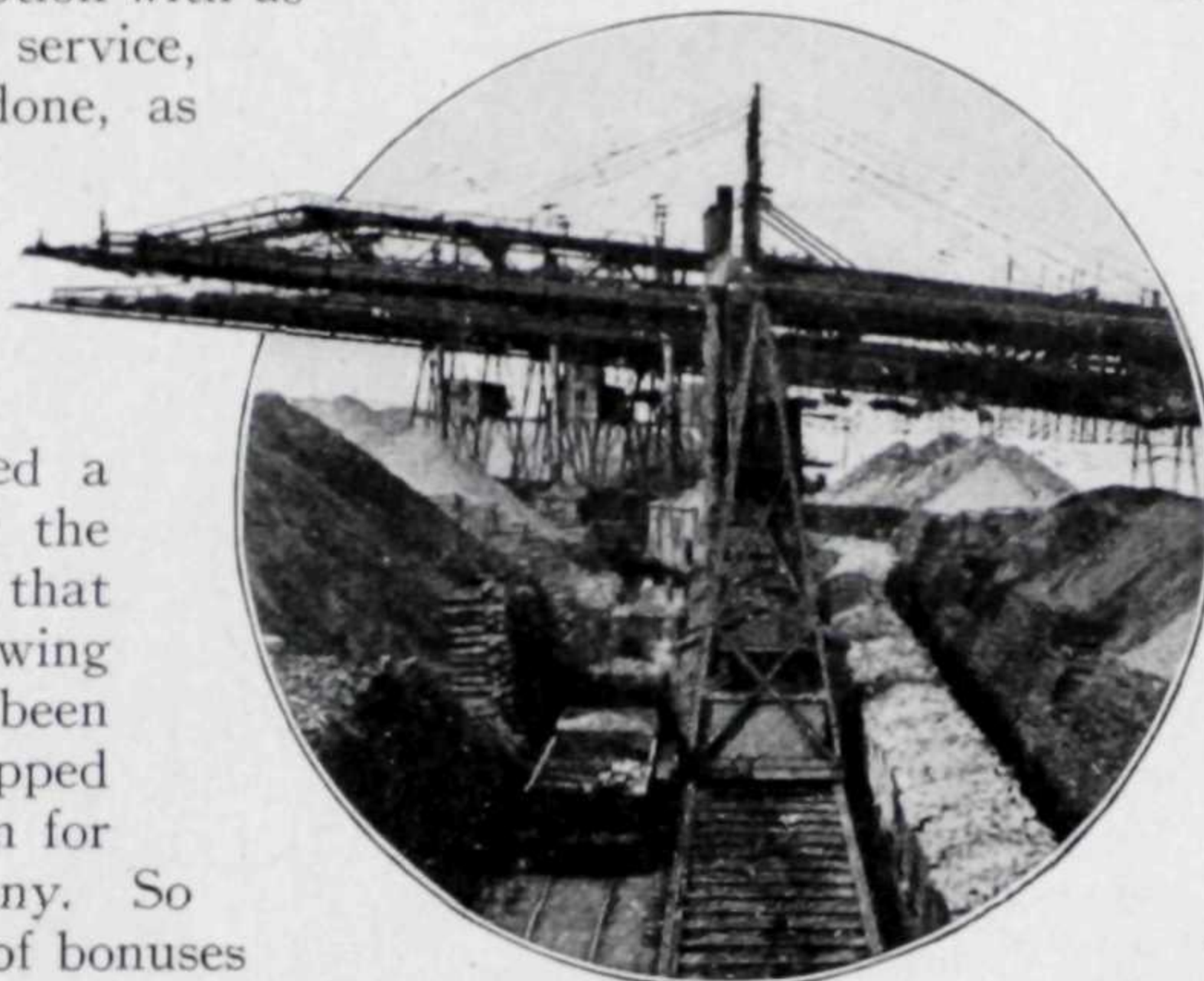
"You prohibit the use of liquor?" the interviewer said.

"Yes. First, and I emphasize the point, because we will not send a crew of twenty-five men, most of whom have wives and children, upon the lakes under a captain who drinks any kind of intoxicating liquor.

"Second, we refuse to put \$400,000 worth of property, not including the value of the cargo in jeopardy. It is

clearly understood that a captain who takes out one of our vessels in the spring is not to taste liquor on land or water until after the vessel goes out of commission at the end of the season.

"All of the great corporations," Mr. Coulby said in conclusion, "should think of the man who is on the firing line. He does not ask for favors, but he demands opportunity and justice. He ought to be kept moving onward—moving for himself and thereby for his employer. We study machinery, finance and processes. Man is more important—and infinitely more interesting."



"THAT WAY MADNESS LIES"

(Concluded from page 30)

move the world. The telephone dates from 1876; today the world's telephone investment is about \$1,750,000,000 of which the United States has \$1,025,000,000. Over half of all the telephones in the world are in one American company.

As all Americans know, S. F. B. Morse was the inventor of the telegraph, which was first tried commercially between Washington and Baltimore in 1844. Ezra Cornell, founder of the university which bears his name, was the superintendent of construction. At the very beginning the modern idea of subterranean wires was uppermost in the minds of those who projected the first lines. Cornell invented a plow for making the trenches for the underground wires; but the plow struck a rock and was smashed, so the resourceful New Yorker devised the plan of aerial wires with insulator pins and "glass bureau knobs" on the cross arms.

Only forty years ago, Alexander Graham Bell sent from one room to another the first spoken words carried

over an electrically vibrant wire. These words were heard in an adjacent room, at No. 5 Exeter Place, Boston, by Thomas A. Watson. This was on March 10, 1876. On January 25, 1915, the same Bell talked to the same Watson, the one in New York, and the other in San Francisco. The first line was scarcely more than 34 feet long; the second, 3400 miles.

At the beginning of its use, one of the government departments at Washington experimented with it as a supplement to the messenger service from room to room. A young fellow named Vail is said to have tried to interest "Uncle Joe" Cannon, then a new Congressman, in the "talking wire". But Uncle Joe was not to be fooled; he had just been let in on the ground floor of some chimeric scheme to get gold out of sea water, and once was enough! But Theodore N. Vail had faith, even if his "prospect" had not; now he is president of the company that controls some twenty million miles of this same talking wire, and proud to head the one great industry which is wholly American in inception and growth.

CONCERNING TOBACCO

In the Face of Attacks by Crown, Church and Science, the Industry Marches Calmly On to Further Conquests

By JAMES M. BINKLEY

Illustrated by R. L. LAMBDIN



IT takes two pounds, two ounces of silver, worth \$20, at the present high price of that metal, to buy a pound of the finest Cuban tobacco—the tobacco, so experts say, that “is smoked by kings.”

Tobacco, thin as tissue paper and used as a wrapper around cigars, grown in the Connecticut valley, sells for as much as \$4 a pound. The value of the tobacco crop of this country in 1916, to the farmers who produced it, more than

equalled the value of the gold and silver mined in the United States during the same period of time.

Touching Cuba, on its northern coast, on November 20, 1492, Christopher Columbus sent two men ashore on an errand of investigation. They met, as Columbus wrote in his diary, “a great many people going to their villages, men and women with brands in their hands, made of herbs for taking their customary smoke.”

The “brands” were cigars. Thus tobacco, having been discovered, along with America, was given a place in written history. Since then the tobacco plant has been carried into all of the large and small corners of the earth.

The tobacco harvested in this country last year weighed more than a billion pounds. Its farm value was \$169,000,000. The “ultimate consumers,” probably, paid five times that amount for the crop, their nickels and dimes going over numberless counters in cities and villages and at country crossroads.

Much of the tobacco, however, was sold abroad—to Englishmen, Frenchmen, Italians and the Dutch. The United States has exported tobacco for more than three centuries. Its heroic story could not be written, with tobacco left out. Indeed, freedom and tobacco, in 1776, marched arm and arm, under the same banner and to the music of the same fife and drum.

“A true history of tobacco would be the history of American liberty,” wrote Moncure D. Conway, the preacher and author, in one of his books. Tobacco made Virginia rich. Codfish brought wealth to Massachusetts. These two colonies, with money in their pockets, defiant and independent, carried the torch and lit and broke the way for all the rest.

“A king,” exclaimed Patrick Henry, so early as December, 1763, “by disallowing acts of a salutary nature, from being the father of his people, degenerates into a

tyrant and forfeits all right to his subjects’ obedience.”

This great sentence has been called “the keynote of the American Revolution.” At any rate, it made Patrick Henry famous and gave him rank among the foremost orators in America. And tobacco gave it form and utterance.

In those days Virginians paid for all things with tobacco. Labor was computed in tobacco. It settled the king’s taxes. Shipped to England, it was exchanged for silver plate and farm implements, for seeds and wines, for books and crockery, for velvets and nankeens.

Preachers were paid with tobacco—16,000 pounds annually. The crop was short in 1763. From two cents, the price advanced sharply. The salary of a preacher, a Church of England man, went up theoretically from \$320 a year, to twice that sum, possibly.

The colonial legislature, however, forgetting their piety as men of business, voted to settle with all ministers in money on the basis of two cents a pound for tobacco. It was a piece of sharp practice and deprived preaching of its speculative and intoxicating elements.

One of the clergymen brought suit to recover. He demanded 16,000 pounds of tobacco, instead of \$320 in money. Patrick Henry was his lawyer. “The parson’s cause,” as the case was termed, would have been tried and, perhaps, forgotten but for Henry’s rebel-like oratory. From that time on to the signing of the Declaration of Independence, George III, King of Great Britain and Ireland, was openly called a tyrant.

Tobacco lifted Virginia out of poverty, built good houses for its inhabitants and filled them with furniture from England. Girls traveled across the Atlantic by the shipload. Each of the young men who married them paid 120 pounds of tobacco to meet the cost of the outlay. Farmers became one-crop specialists, refusing to sow wheat or grow corn. A law at last limited a farmer to 2,000 tobacco plants but the law was not obeyed.

The crop of 1679 was



too large for the market. There was another immense harvest the year following. What the law could not do, the farmers tried to do themselves. "Plant-cutting," as their felonious performance was called, grew to be general.

"The growing tobacco of one plantation was no sooner destroyed," Bruce notes in his *Economic History of Virginia*, "than the owner, having been deprived, with or without his consent, of his own crop, was seized with the same frenzy and went with the crowd as it marched to destroy the crop of his neighbor."

Plants by the million were pulled up and 10,000 hogsheads of cured tobacco, stored in warehouses, were burned. Then the militia was called out. Three of the leaders of the mob were caught and hanged, and so

ended an adventure that was repeated more than two centuries later.

Back in those robust days, and earlier, kings and priests fiercely condemned the use of tobacco. James, ruler of England, Scotland and Ireland, described it as "a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs and in the black stinking fumes thereof (referring to burning tobacco) resembling the horrible Stygian smoke of the pit that is bottomless."

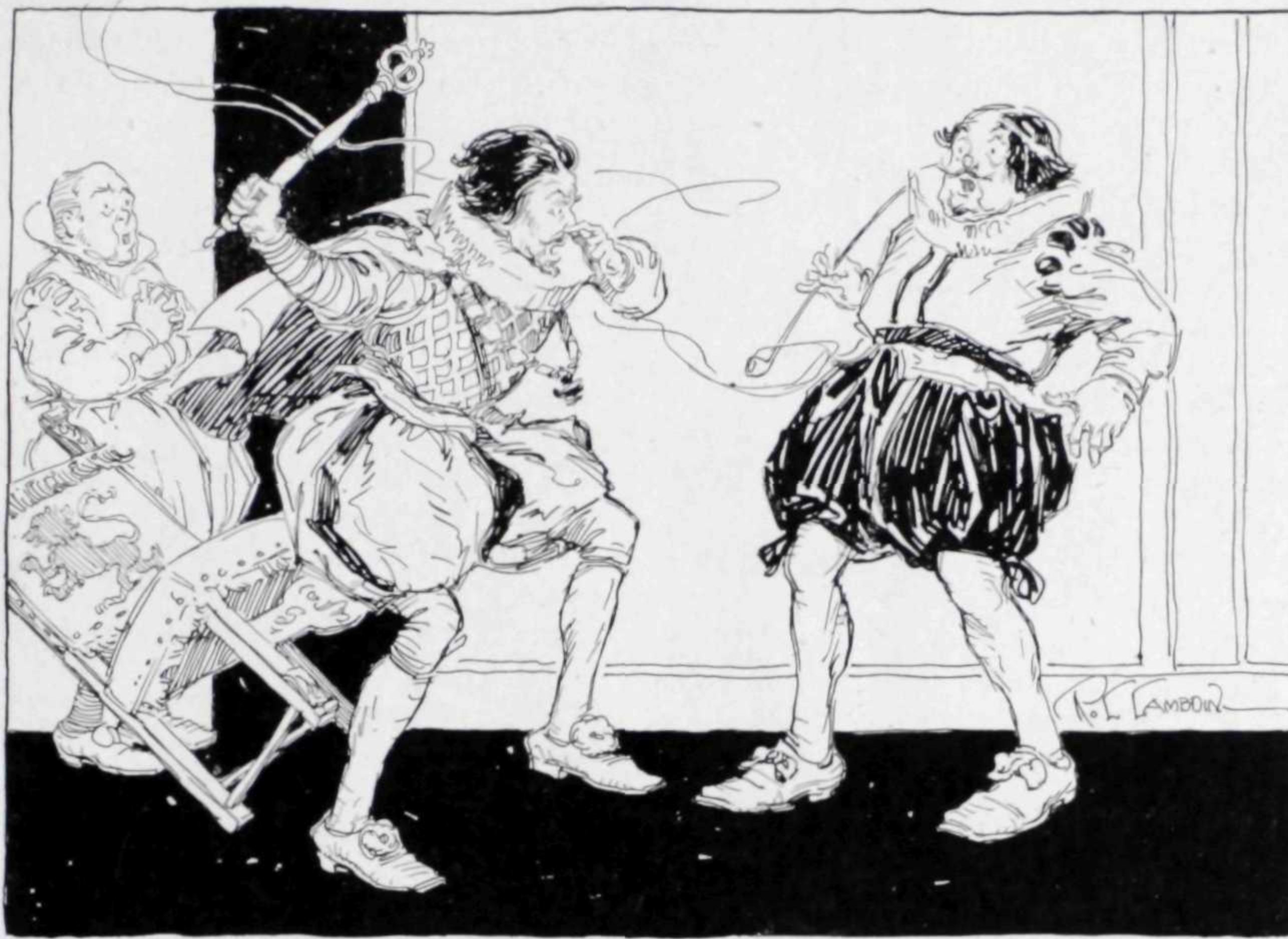
But the industry grew and kept on growing (and that is its state to-day) until it spread all over the face of the globe. Twenty-five billion cigarettes were manufactured in the United States last year, as against about eight billion a decade ago. Formerly, young men and boys learned to chew tobacco. Now they are learning to smoke cigarettes. The generation of chewers is dying. Smokers are making the tobacco industry more profitable than ever before in its history.

One American company, with \$53,000,000 of 6 per cent preferred stock, earned about 25 per cent on its \$40,000,000 of common stock during the year 1916. A branch of this corporation, separated from it by a decision of the court, and owned by Americans and Englishmen, is doing business in Canada, Denmark, China, India, Egypt, Germany, Belgium, South Africa, Sweden, Jamaica, Virginia and Kentucky. The dividends of this company were 50 per cent last year. It manufactured thirty billion cigarettes, which was five billion more than the output of all the factories in the United States.

The growing of tobacco is unlike the growing of any other crop. To explain it fully would take a book. It is both mysterious and complex. Wightman W. Garner, born in South Carolina, forty-one years ago, a doctor of philosophy by a degree of Johns Hopkins University, and a chemist by profession, is the highest authority on the subject of tobacco-growing in the

world. It is he, at the direction of the National Government, who reveals to the farmers in this country the last discoveries in cultural methods.

"The normal tobacco crop of the United States," he told the writer of this article, "is a billion pounds; and the normal return to the growers, at about ten cents a pound, is one hundred million dollars. Last year the crop was larger than usual and the farmers re-



King James' testimonial of tobacco referred to it as "loathsome to the eye, harmful to the brain, dangerous to the lungs, and in the black fumes thereof, resembling the horrible stygian smoke of the pit that is bottomless."

ceived \$69,000,000 more than the average for their harvest. The price, too, was higher, being a fraction less than fifteen cents a pound, as compared with a fraction more than nine cents a pound in 1915. In the parade upward, tobacco has taken a place in the line of march, as a matter of sympathy with a loyalty to other products, I suppose.

"The yield in 1916 was 815 pounds to the acre. That number into 1,150,622,000 pounds, the weight of the crop, goes 1,411,800 times. The latter figure, therefore, was the acreage. If all the fields had been brought together, their area would have been 2,206 square miles. The consolidated field would have been forty-seven miles long and forty-seven miles wide. In money, each acre yielded about \$102. Between 250,000 and 300,000 American farmers are engaged in the tobacco industry.

THE farmers live in fifteen States. I am talking, you understand, about the commercial growers of tobacco, about the men who figure in the market. Kentucky, as a producer, leads the country with a yearly crop of 300,000,000 pounds. North Carolina and Virginia each grow more than 100,000,000 pounds, Ohio 80,000,000 pounds, Tennessee 70,000,000 pounds, Pennsylvania and Wisconsin 50,000,000 pounds each, and then follow, in the order I give, Connecticut, South Carolina, Maryland, West Virginia, Indiana, Massachusetts, New York and Florida. Kentucky, commonly, grows about one-third of the American crop.

"Export tobacco and that which is used in this

country for the manufacture of plug, fine-cut, smoking and cigarette tobacco and also snuff is marketed, principally, at Lexington and Louisville, Kentucky, Danville and Lynchburg, Virginia, Baltimore, and Wilson, Greenville and Winston-Salem, North Carolina. The leading points of the collection for cigar tobacco are Hartford, Connecticut, Lancaster, Pennsylvania, and Edgerton, Wisconsin.

"The exports amount to 400,000,000 pounds yearly and the imports to 60,000,000 pounds, half of which is Cuban leaf and half Turkish tobacco for cigarettes. The same kind of tobacco that was shipped to England from Jamestown, Va., in 1612, is now being sold to Great Britain.

"Maryland sent tobacco to France and Holland three centuries ago. It sent the identical variety of tobacco to those countries in 1916. One generation of tobacco users passes its particular taste for a particular sort of tobacco to the generation that follows. Anyway that has been the case among the English, the French and the Dutch.

"Cuba produces the highest-priced tobacco grown in the world. Also some of the cheapest. Prices there range from five cents to \$20 a pound. The latter grade, made up of a leaf gathered here and a leaf gathered there, is limited in quantity and is smoked, so it is supposed, by kings, czars and emperors.

"The fine aromatic tobacco of Cuba is not grown in all parts of the island but on a little spot near the western coast, the size of which is no more than twenty-five square miles. Such tobacco can be produced nowhere else. We have tried to grow it in this country but without success.

FIRST we went to Cuba and made chemical analyses of the air, soil and water. We measured the rainfall, noted the velocity of the wind and studied the sunlight. But the influences which give to Cuban tobacco, in the region to which I have referred, its superior quality are too subtle and complex to be discovered.

"Long experiments were made in a county of Texas, where soil, water, and so forth, we thought, approximated conditions in Cuba. Tobacco was produced, but there was no place for it in our market. It was not good enough for a ten-cent cigar and was too good—that is, too costly to produce—for a five-cent cigar. Cuban tobacco is dear and, besides, its import duty, collected by the Government of the United States, is twenty-eight cents a pound.

"Tobacco is unlike any other of the crops grown in this country. Wheat is wheat, broadly speaking, and corn is corn. It is not so with tobacco. Three kinds of tobacco, as different from one another as are rye, oats and barley, are produced in Ohio.

"The first settlers found the Indians cultivating tobacco in little gardens. Tobacco of the same sort is now growing wild in this country, but it is so coarse and rank that it can't be used. The variety exists and can be seen as far north as the State of New York and is cultivated in China and Russia. The tobacco that our farmers produce came long ago from the Orinoco region of South America. Planted at different places, under various conditions as the quality and texture of the soil, the amount of moisture, and so forth, it changed in leaf, color, taste and aroma.

"Thus it is that we have strong and mild tobacco and light and dark tobacco. There are numerous other

variations, but these are too technical for a short article. The growing of tobacco is a complex undertaking and many things are to be considered and dealt with. The planters of Kentucky could not follow the methods of New England, where tobacco is grown under cheesecloth.

"The best wrappers for cigars come from the Connecticut Valley. Tobacco out of which they are made is as thin as tissue paper. Five thousand acres are given up to this important branch of the cigar industry and every foot of the land is under tents that are from nine to ten feet high. Thus the crop is planted, cultivated and harvested in the shade.

"I know of a 500-acre tract that is operated under one management. The most intensive farming in the world is carried on in the Connecticut Valley, where an acre of land, season after season, produces a thousand dollars' worth of tobacco. To give you an indication of its value, let me say that the duty on wrapper tobacco brought into this country is \$1.85 a pound.

"Early in the nineteenth century, say from the year 1800 to 1830, many land-owners in Maryland migrated to southern Ohio. They carried tobacco seed with them and so established the industry in that State. Such tobacco is still sent to the market in Baltimore. We know the name of the man who moved to Ohio from Connecticut and, with the seed he took along, introduced another kind of tobacco in the former State. The son of that man, with seed from Ohio, began the cultivation of tobacco in Wisconsin.

"While the men of Maryland were crossing the Alleghany Mountains, bound for Ohio, men from Virginia, going over the mountains farther south, carried tobacco seed into Kentucky. The tobacco grown from that seed is dark in color, and large quantities of it are exported to England. After the Civil War, a new tobacco, called Burley, was developed in eastern Kentucky. It is used extensively in this country in the



In Cuba Columbus' men found natives with "brands made of herbs" in their hands with which they took their "customary smoke."

manufacture of plug and smoking tobacco and cigarettes.

"Soil and subsoils, rainfall, temperature and air, here in the United States, as in Cuba, have their influence on the quality and quantity of the tobacco crop. The fertilization of tobacco lands is another involved problem. What is good for tobacco in one region may work harm somewhere else.

"The planting of tobacco likewise varies in methods. The seeds are sown in beds and the stalks are transplanted. Transplanting in small fields is done by hand; in large fields, if the ground is level, it is done with a machine, which waters the stalks, as well. Hand transplanting makes necessary the watering of each plant with a bucket and a dipper.

"Tobacco plants to the acre range from 3,500 to 14,000 in number. You see, as I have shown, the rules for tobacco-growing can't be reduced to a standard. Nor is the harvesting done the same in one place as in another. And there are three ways of curing a crop.

"Tobacco to be air-cured is hung in a building and dried out by ventilation and evaporation. Flue-curing is done by heat. The tobacco is hung on poles and hot air is let in through registers, just as houses are heated by furnaces in the cellars. Fire-curing is really a combination of heat and smoke. A hardwood fire is built in the tobacco room and, after burning for a day or two, is permitted to go out. Three or four days later another fire is started. So the process continues for a month or six weeks.

"Flue-curing requires from three to five days and air-curing from three to ten days. Fire-cured tobacco is flavored with creosote, being saturated with smoke, and is terrifically heavy. It is a great favorite in Italy; and a cigar made of it will last all day. An Italian will take a few puffs and half an hour later will light up again and take another puff or two. A whole cigar, smoked continuously until burned to the butt, would mean certain death, I imagine.

"It will surprise many persons to learn," Dr. Garner added, "that the first money-crop grown on Manhattan Island was a field of tobacco planted by the Dutch near the present site of the post-office, in lower New York. It was sent to Holland and sold.

"After the Revolutionary War, all the specie having been drawn out of the country, tobacco again passed in Virginia from customer to merchant and from employer to worker as a medium of exchange and a measure of value. Farther north, up in Massachusetts, salt-pork performed those

functions in some instances. At all events, the editor of the *Worcester Spy* stated in his own types that he would accept salt-pork in payment for his paper."

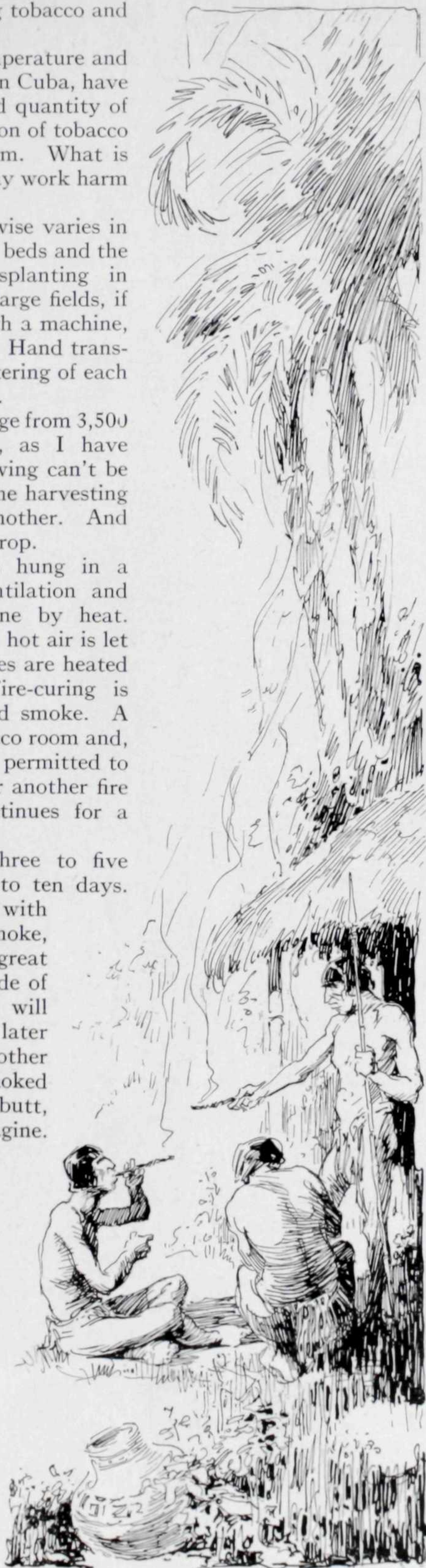
Advice from the Dead for Live Exporters

DON Manoel Gonzales (Peace to his bones!) has long since gone the way of all merchants, both good and bad. But while yet he trafficked up and down the earth, he discovered and set down certain trade truths that retain their full strength and vigor despite the years. This wise old exporter might have had his American brother of to-day in mind, so unerringly did his words go to the heart of our present needs.

Mr. Charles M. Fassett, Commissioner of Public Utilities of Spokane, stumbled onto the don's observations in an ancient book called "A Collection of Voyages and Travels", printed and sold by Thomas Osborne of Gray's Inn, London, 1745. The timelessness of the quaint passages caused Mr. Fassett to send an extract from the book to THE NATION'S BUSINESS.

In describing a voyage to England from his home in Lisbon, Don Manoel said:

Tho' our greatest dealings in the mercantile way are with the subjects of Great Britain, none of the natives endeavor to teach or learn their language. Therefore, my next step toward obtaining true ideas of a nation I, in all probability, was to deal with during my life, was to search not only for Portuguese and Spanish, but for French and Italian authors; yet I could find none in any of these languages, that are any other than mere superficial accounts, and in my opinion in no way capable to convey just ideas of so deserving a people, nor sufficient to instruct a foreigner how to manage an advantageous commerce with them. For so long as we are kept ignorant of any country and traffic with its natives only by factors of their own nation, settled among us, we must take only what they please to impart, and at their own times and price, to our own great loss; whereas, a merchant, that is thoroughly acquainted with the product, manufacture and genius of the nation he trafficks with, has the advantage to supply himself with the best commodities, in the best seasons, and at the cheapest rates. Consequently, I, resolving to merchandise with Great Britain, resolved also first to learn the language, and then to make a voyage to the island itself.



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WASHINGTON, APRIL, 1917

WAR FINANCE develops some astounding figures. To February 17, 1917, England has spent since August 1, 1914, something like \$20,000,000,000.

Of this sum something like \$5,000,000,000 came from taxation and around \$15,000,000,000 from loans negotiated not only in England but pretty much around the world. The precise proportion of England's present expenditures for war that is derived from taxation is placed at 22 per cent.

On this point England has some precedents to uphold. Forty-seven per cent of the cost of the Napoleonic wars, and even a fraction more of the expense of the Crimean war, it met out of the returns of taxation. Now that expenditures are running at a rate of \$10,000,000,000 a year, and \$3,500,000,000 has been raised through the latest popular loan, the administration in England is described as taking off its coat for the job of bringing the proportion of expenditure supplied out of taxes more nearly up to precedent.

Of course we, too, have some history in such things. The Revolution was largely financed through loans from France. In 1782 we began borrowing from Holland. When we came to the war of 1812 we issued bonds aggregating about \$80,000,000, but on such disastrous terms that the Treasury seems to have realized only \$34,000,000, which can accordingly be set down as the cost of the war and the higher sum the price we actually paid for it. Things were different in 1848, however, when the cost of war was met out of \$16,000,000 in six per cent bonds which sold at a small premium.

The Civil war was our great test. Returns from taxation during the years of 1861 to 1865 were \$771,000,000. Expenditures were \$3,415,000,000, and in 1865 the outstanding debt of the national government reached its highest point, at \$2,845,000,000. Accordingly, the figures show that we met from taxation almost exactly the same percentage of the cost of

war as England is to-day paying out of her taxes.

The Spanish-American war, in 1898, brought new taxes and a new bond issue. Of these the bond issue was the more noteworthy; for when public subscriptions to \$200,000,000 were invited they mounted up to \$1,500,000,000 in thirty days! As our wealth has grown three times over since 1898, we might expect popular subscriptions to-day to reach well nigh \$5,000,000,000 for the first loan,—a figure to compare with the \$3,500,000,000 in new money England obtained through her great loan which recently closed.

FINANCIAL STRONGHOLDS exist in a variety of places. Trading on the results of a brilliant career as a mercantile nation, Holland has played a part in international finance that is utterly out of proportion to its territorial extent, and apparently it has prepared for the future by obtaining an extra \$2,000,000,000 in wealth since August, 1914. If the Dutch public remains true to predilections of recent years it will invest most of this "war profit" in bonds of American railways and the Russian government.

Switzerland is another financial stronghold. From Germany and Austria residents of Switzerland draw something like \$60,000,000 a year in interest, and perhaps as much as \$25,000,000 from Italy. Accordingly, watching the course of exchange

THE NATION'S BUSINESS

As Reflected in the Month's News

Whence Come the Sinews of War
Dutch and Swiss Strong Boxes
Recruiting a Nation's Automobiles
Old King Coal a War Lord

between Germany and Swiss money has been more than an engrossing pastime in Switzerland.

The rates have changed with each fortune of war. German money began 1916 at a depreciation of 20 per cent. In November, 1916, it had declined to a discount of 36 per cent, but it responded sufficiently to later events to end the year at a depreciation of 33 per cent.

Meanwhile, Austrian money fell to 53 per cent less than par, leading some European students to draw morals which are scarcely obvious at a glance. By figuring they made out, in fact, that relatively German money as exchangeable for Swiss declined in value during the year at a

greater rate than Austrian. Therefore, said the quidnuncs, state control of foreign exchange, which is practiced with a vengeance in Germany, results in less national advantage than freedom in foreign exchanges, as maintained by Vienna bankers.

AUTOMOBILES sustain a good share of the brunt of modern war.

The United Kingdom in 1914 had 536,000 registered motor vehicles. After the government's wholesale commandeering in the first year of war, registration stood at 300,000. In 1916 the numbers had started to rise again and reached 331,000.

Of these cars, however, something like 80 per cent have a share of some kind in "national service." Practically every owner of a "fleet"—and perhaps because of ship-owning habits possession of cars in England runs decidedly to fleets—has his automobiles lent for ambulance service or some other purpose important in war.

COAL plays a part in the world's affairs that can be measured by the billion and a half tons mined in a year immediately before the European war.

In the last two years our proportion of the world's production has grown. When the official figures for 1916 are compiled our out-turn for the year may be around 600,000,000 tons, which may prove to be half of the world's coal for the year. Even so, our mines seem to have been idle for an average of three months. This reserve capacity in mines already developed may come handy.

Meanwhile, the coal trade is changing about. There are stories that mines in Pennsylvania and West Virginia have so great a new demand from the East that they may curtail their shipments by barge down the Ohio, and by steamer up the Lakes. The mines of the Middle West may have their markets pretty much to themselves.

But that is not all. Even in the face of ocean freight rates which not so long ago would have appeared fantastic (rates well over \$20 a ton were recently paid for coal to Brazil), our coal is in demand abroad—a condition of affairs not so very strange when coal is distributed by the government in France almost literally by the handful. Besides, we are doing more than filling steamer bunkers. Apparently, we shall soon be coaling most of the ships that use the Panama Canal, at a rate of ten or fifteen million tons a year. In an age of steam,—even some eastern hydroelectric plants had to turn temporarily to steam last autumn,—our heritage of coal, into which we have as yet dipped to an extent that is less than one per cent, is an

asset that may yet bring comfort to manufacturers who during the winter besieged the offices where coal is sold.



FOREIGN TRADE is a subtle thing, for many of us. It seems to have no place in our every-day lives, intruding upon us only in startling perorations at banquets or in picturesque magazine articles which set us to ransacking the attic for old geographies.

To be sure, the local woolen mill, the ancient tannery where our forefathers obtained both leather and the spent bark they used for their garden walks, and even the grist mill on the creek may have vanished, but we persist in a very satisfying sense of independence from all the rest of the world.

The cotton grower may keep his eye on Liverpool, some people who raise tobacco may watch European markets, lumbermen with access to the coasts may make their plans according to their sales in Australia or the Argentine, and merchants and bankers at the ports may have a stake in foreign trade,—a man who lives inland a thousand miles may argue,—but a country merchant or a farmer of the Middle West has no concern.

Like most off-hand arguments, this reasoning misses the mark. When such a skeptic grumbles at the price he pays for a gallon of good varnish he may be meeting the cost of troubles with the native New Zealanders who dig kauri gum from the earth. The price his wife pays for currants plays a part in the governmental affairs of Greece. The tobacco in his cigarette more likely than not was plucked by peasants who have been through two Balkan wars. The glass beads with which his children play were made in Venice. The carpet on the parlor floor came at a high price because bandits in western China cut off the supply of sun-dried wool. The linoleum on the office floor originated in Argentine linseed, Spanish cork, and Indian jute, combined by American ingenuity. The tin on the cans out of which the vegetables for dinner came was mined by peons in Bolivia or by coolies on the Malay peninsula. And so it goes through a great list of commonplace things. The ends of the earth, and all their political and social problems, enter into the daily life of all of us.

Trade is reciprocal, and we do our share of selling, too. It is not altogether a matter of agricultural implements, sewing machines, and automobiles, either. A farmer boy in Illinois or Missouri who toils at bringing down an oak in the wood lot would be aghast at a suggestion that he has a share in export trade. Nevertheless, staves from his tree may go directly to Argentina or France and thus help to pay for the Patagonian wool in his Sunday-go-

to-meeting suit or for his mother's best piece of China.

The truth is that, although the world is quite as big a place as ever, our possibilities for transportation have made neighbors out of the antipodes and foreign trade is merely a short description for a vast complexity of neighborly activities which none of us could forego without completely upsetting our whole modern scheme of things.



LOADING becomes a matter of prime importance when cars and steamers become scarce. As an art its practice is still altogether too much neglected.

The extent in which good loading would have saved cars during our car famine of the winter there is no way of estimating. England, however, with the task of carrying meat enough to supply not only herself but France and Italy as well, did some figuring and found that the cubic contents of refrigerator space on steamers was double the quantity of meat actually transported. Some of this refrigerator space was diverted to other purposes but there was enough of a surplus left to point a moral. Taking this lesson to heart some Englishmen are talking of importing only meat from which the bones have been removed,—a procedure which would have saved the space of 250,000 tons last year.

The importance of beef transport lies in the conclusion of European military commanders, that frozen beef, as opposed

THE NATION'S BUSINESS As Reflected in the Month's News

You and I In Foreign Trade

Loading Ships a Fine Art

Demanding More Oil From Mother Earth

Only One Lump, Please

to fresh-killed, is an almost indispensable foodstuff for armies.



PETROLEUM was important enough when it supplied us with illumination. In that particular use it has had gradually to yield ground but for every square mile it has lost in this particular direction in the industrial struggle it has occupied ten square miles of virgin territory, metaphorically speaking, in other directions.

Thus it comes that in almost any corner of the earth one may run across an oil-driller busily probing the earth in his search

for petroleum, and especially for petroleum that carries a high content of gasoline,—the kind now found in the Pennsylvania and Wyoming fields. Cuba reports the latest successes on the part of the prospectors. Within a few miles of Havana a well has "come in" at a daily rate of 2,400 barrels of oil of the sort that produces most gasoline.

Even though the search for new oil fields is spreading outward beyond our borders we are doing a great deal to make the most of such resources as we have left. Natural gas no longer pours into the air in the "good old way"; it is very largely confined these days, and made to give up its values in gasoline. Besides, the amount of gasoline many of our crude oils produce is being enlarged, through a process which "cracks" fickle hydrocarbons and makes them reunite, to an extent, in the varieties that make up gasoline.



SUGAR, chemically described, is a hydrocarbon, and hydrocarbons are commonplace enough. They are so commonplace, in fact, that they appear in the daily ration of man the world around. Esquimaux feasting on blubber and the professor of philosophy who takes "three" in his morning coffee are yielding to the same human impulse.

But the world is advancing, and all of us have been busily substituting beautiful crystals of sugar for blubber and its congeners. Tested by this standard, we Americans have advanced very decidedly in civilization, for when the European war broke we were eating 89 pounds apiece in a year, although in Civil War times we got along on 18 pounds.

Although methods of modern war may very little regard achievements of civilization, the men themselves cannot turn backward their acquired habits for food so easily as they make peace with their consciences. Combatant and non-combatant must have sugar.

So it comes about that every European belligerent is conserving its sugar. Germany has long been controlling the sugar appetites of the people. Australia is this year offering new bonuses for farmers who will grow sugar beets. England has not only been regulating the supplies of sugar for its people but apparently contemplates guaranteeing interest on investments in sugar-beet factories in the United Kingdom, with guaranteed prices to farmers who raise beets. France has undertaken to reduce the annual consumption of her people per capita from fifty-three pounds to twenty.

As for ourselves, we have been conserving a bit, too, by virtue of the inexorable effect of high prices. When we ate 89 pounds apiece the average wholesale price in New York was 4.68 cents. In 1915 this price went to 5.55 cents, and we curtailed by three pounds each. In 1916 the price

continued upward, and we cut off three more pounds of our sugar ration, making a difference in our national consumption of about 143,000 tons in one year.

Of the sugar we used in 1916, apparently about 6 per cent came from cane grown in the United States, 19 per cent from United States beets, 15 per cent from Hawaii, 11 per cent from Porto Rico, 3 per cent from the Philippines, and 45 per cent from Cuba.



TRADING BY TREATY has its allurements. It occupies first place in the report of an official British committee on commercial and industrial policy.

This committee would begin with customs duties for England, and then proceed by reducing or remitting them for imports from other parts of the empire as a means of promoting intra-imperial trade. The committee, as a third step, would have these duties a basis also for trading with allied and neutral countries in a new series of commercial treaties designed to obtain advantages for England.

Custom duties are an apple of discord without equal in England, and the committee's policy will have a long career before it reaches consummation.



INDIAN COTTON GOODS brought to a head a good bit of the discord in England about tariff duties, for the House of Commons had to decide whether or not it would approve the Indian government's proposals for increasing import duties on cotton goods.

Against such a plan the cotton manufacturers of Lancashire protested vigorously, some going to the extent of declaring they would have to lose their great Indian business and close their mills,—an exigency which our cotton growers would not like, since eighty-five per cent of the cotton used in English mills comes from the United States.

The size of the Indian market appears from the figures. In 1913-1914 India imported a billion and a half yards of grey cotton goods and eight hundred million of colored. In the same year Indian mills made eight hundred million yards of the former sort of goods and two hundred million of the latter. Meanwhile, the Indian mills have kept expanding. Two years later, in 1915-1916, they had increased their product by twenty-three per cent.

For this industry India in effect asked protection on terms that resemble a bargain. The House of Commons eventually approved the plan, on March 15, on condition that the whole question be reopened after the war; it now undoubtedly contemplates with satisfaction India's promise to arrange a loan equivalent to \$500,000,-

000. War finance, it appears, crops out in all manner of places.



RUSSIAN LUMBERMEN clearly intend to have their share in rebuilding devastated areas in Europe. They have been in conference with officials, went on record that Russian capital and labor could handle twenty million logs a year, objected to concessions to foreigners for lumbering operations, and declared for a syndicate of all lumber-exporters of Northern Russia. Russians look upon exploitation of their enormous forests as an economic necessity since exports of lumber can do a large part in improving Russia's balance of trade and raising the rouble in foreign exchange.



PERCENTAGE INCREASES IN FREIGHT RATES are sought by the railways. Their plan is to file with the Interstate Commerce Commission brief supplements to existing tariffs, these supplements to declare an increase by a certain ratio.

The law requires, however, that new schedules of rates be filed thirty days in advance and if strictly construed might prevent the use of such brief supplemental statements of percentages as the railways propose. Accordingly, since the railways desire immediate increases in rates and wish to use a short form for changing existing schedules, they presented petitions to the Commission, between March 22 and April

estimates. They place the increased cost of coal in 1917 for seven eastern roads at \$37,000,000, assert that these roads spent in 1916 ninety-one per cent more for taxes than in 1906, and declare that the materials used by the Pennsylvania, for instance, cost 78 per cent more on the average in 1916 than in 1914. The total result on the seven roads is said to be that in the face of an increase of 7 per cent in gross earnings during October, 1916,—January, 1917, as compared with the results in the corresponding four months of the year before, net income from operation decreased almost six per cent.

The statistics of the Commission for the months in question may bear out the railways' general position. Although they show that all the roads in the country had operating income of \$374,000,000 in the four months for this year against \$363,000,000 for the corresponding period of last year, they indicate that Eastern railways as a group have but \$137,000,000 left this year after figuring operating expenses, taxes, etc., as against \$155,000,000 in the same four months last year.

The Commission's partial statistics for February,—made public on April 3 for 118 large roads,—are even more striking. The net revenue per mile of all these roads in February this year was \$267, and \$336 in February, 1916. The net revenue per mile for the roads in the Eastern district was \$224 this February and \$504 last February. In the Southern and Western districts, however, net results of operation in February of this year were slightly better than in February, 1916.

If the Commission agrees to the plan of the railways for increases by percentage different roads may use different ratios. A representative of the Pennsylvania told the Commission that Eastern roads will ask at least 15 per cent generally, 10 cents a ton more on coke, and five to fifteen cents on coal. Statements about the percentage of increase required by these roads to meet the cost of the eight-hour law and the rise in prices for materials were to the effect that the Missouri Pacific needs 18 per cent, the Rock Island 19 per cent, the Frisco 20 per cent, and the Missouri, Kansas, and Texas 21 per cent.

Since 1910 the railways have been acting more or less in concert in asking increased rates. The Commission then held that the railways of the East had not established an existing necessity for higher rates. In 1913 the Commission reopened this matter, which grew into the Five-Per-Cent case and was decided adversely on July 29, 1914, but reopened once more and in part decided favorably for the roads in the following December.

At present, the railways are asking not only the Interstate Commerce Commission for increases in interstate rates but also state commissions for higher intrastate rates.

THE NATION'S BUSINESS As Reflected in the Month's News

Customs Duties Apples of Discord

War-time Protection for India's Cotton

Russian Forests for New Europe

Railways Ask For Rate Increase

2, asking that the Commission exercise the authority it receives by law to allow changes in rates, "for good cause shown", upon less than thirty days' notice and modify the usual requirements about filing new rates.

For "good cause" the railways rely upon increases in the expenses they sustain,—increases because of the eight-hour law which the Supreme Court upheld on March 19,—current cost of equipment, supplies, and fuel, expense for extending facilities to meet the needs of commerce, advanced rates for new capital, and additional obligations connected with national defense.

For some of these items of increased expenditures the railways offer concrete

AN IGLOO FAIR in Alaska has many of the diversions of western round-ups of lamented memory.

To be sure the inner exhilaration seems to come, not across a bar, but from a bath in a warm spring, with a quick roll in the snow, "to keep from taking cold", in an atmosphere which registers thirty degrees below zero.

Such temperatures may conduce to speed. At any rate, when heavily engined motor boats were planing over the water about Miami at forty miles an hour, three-hundred pound reindeer at the other extremity of our domain were doing their fifteen miles an hour, for the same purpose, too—the fun of the game.

According to story books, reindeer have beautiful and romantic manners. In real life there are some wild ones. At the Igloo Fair the hardiest contestants tried their hands at driving unbroken animals and had their hands full. At a signal, every man had to dash into the herd, rope, throw, harness, and hitch his deer, and drive him half a mile straight-away and return. Such a proceeding led to extremely lively action, in the midst of which one doughty deerman threw his obstreperous animal, rolled him on a sled, tied him down, and hauled him to the turning mark, whence the deer brought him back at a rate that obliterated records and satisfied all Eskimaux ideals.

Properly enough, the occasion had its relation to our meat supply. In fourteen years Alaska's twelve hundred reindeer have multiplied into 80,000. As a deer of three hundred pounds will dress to a hundred and seventy, we are in the way of adding Alaskan reindeer to the Alaskan salmon, Alaskan halibut, and Alaskan cod already on our menu.



THE PHILIPPINES think they have material at hand to meet the scarcity of paper, and everybody agrees that paper is a prime necessity for modern life.

The Philippines have bamboo, and a lot of other fibre plants. Twenty-five hundred acres of bamboo of the variety the Filipino call *cana bojo* will occupy for three years a pulp mill with a daily capacity of twenty tons, and at the end of the three years the harvesting of a new crop of bamboo can begin. In other words, such a mill can work indefinitely.

Other parts of the Far East are bringing forward their competitors for attention of paper-makers. Burmah has a grass. India has another grass. The Dutch West Indies offer a wood and New Zealand is experimenting with its flame tree.

So far no one appears to have taken seriously the suggestion which Gladstone made fifty-seven years ago in Parliament, that champagne could be made from rhubarb, and the fibrous residue turned

into paper. Rhubarb continues to find its greatest economic use in pie, even when prices of paper have set a good part of the world to looking for new sources of pulp, and a good many people are looking for "home-grown" sources of champagne.



PRIZE COURTS open their doors when war comes and set about adjusting the exploits of their country's naval vessels to the rights of neutrals, and even of enemies.

England's prize courts have in two and a half years produced a real grist of decisions. Some of the cases have theoretically gone hard with Englishmen. For instance, British bankers who before August 1, 1914, had advanced money on the security of German-owned cargo were told by their own prize courts that they had no claim on the spoils. The rigorous rule of the prize courts that only ownership counts excluded them. Even so, they probably went unhurt both in feelings and pocketbook, since they could fall back upon the "Crown's bounty" and come off whole,—a very neat, if ancient, expedient for keeping the principles of the law unimpaired and at the same time avoiding hardships for everybody.

In another case a British steamer was caught at sea by the war with a cargo of American petroleum owned by a German corporation of the "international" sort. The prize court proved very short-sighted; it insisted it could see no further than the German nationality of the corporation, and

THE NATION'S BUSINESS As Reflected in the Month's News

Reindeer on Our Bill of Fare
The World Looks for Paper Pulp
The Sea's High Court Busy
The World Drinks More—Tea
They Tax Your Job in Chile

could not regard the fact that the greater part of the company's stock was held by neutrals.

On another occasion, however, the court had no lack of keen vision. The German owner of two sailing vessels at sea for England on August 1, 1914, tried to save them by making a sale by cable to a British corporation, controlled by an affiliated interest. The British corporation even went so far as to telegraph the British admiralty offering the boats for admiralty service. The admiralty officials gracefully declined the proffer, however, and the prize court brushed aside the gossamer of technicalities, condemning the vessels.

Americans have had all sorts of cases before the British prize courts. They have not only had at stake shipments of copper and packing-house products but a Tennessee firm and a Virginia firm got into a situation that surprised the judges. With a German concern they entered upon a joint adventure in shipping fifty hogsheads of strong tobacco to Germany. When the prize court had puzzled for some time over the case it undertook to cut the Gordian knot of entangled affairs by giving to the American concerns the value of their fractional interest and condemning the fractional interest of the German house. Besides, the court let the Americans off without paying anything for freight charges.

As adjudicators of international law the prize courts of belligerent countries will be dealing for several years in the future with novel situations pertaining to the sea and its traffic.



TEA has a boom and contrary to most crops produced heavily in 1916. India, Ceylon, Java, Sumatra, and South Africa recorded increases from their gardens; only China fell off.

Tea-drinking grew in the year in a way that suggests tipping rather than the sipping of an occasional dainty cup. The United Kingdom set some three hundred million pounds to brewing, and had its soldiers brew thirty million pounds more. As a cup that cheers tea forged ahead in Russia and France, too, and even caught the favor of natives of India who formerly consented to raise it but turned their faces resolutely against it as a beverage.

Fancy plays a big role in tea-drinking. The United States likes its tea from Japan and Formosa, although it now accepts a fourth of its share from Ceylon and India. England on the other hand wants none of the Japanese variety, taking over 85 per cent from India and Ceylon.

The world's consumption of tea has trebled in thirty years, and the end is not yet.



CHILE has authorized each of its municipalities to levy a tax on every occupation,—professional, industrial and commercial,—they can find within their borders, and Chilean legislators discovered three hundred twenty-five to place on their list. Commercial travellers, especially those who sell jewelry, come in for a tax of 1,000 pesos (around \$250) in each of the fifteen provinces in which they do business. They pay the same rate as accountants, cable offices, and brewers. They may be able to avoid the tax, however, by forming connections with local houses, which pay from 200 to 500 pesos on their whole



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Some of our Famous Trains

Memphis Special—Between New York and Memphis via Washington and Chattanooga.

Royal Palm—Between Chicago and Jacksonville via Cincinnati, Chattanooga and Atlanta.

New York & New Orleans Limited—Between New York and New Orleans via Washington, Atlanta and Montgomery.

Pan-American Special—Between Cincinnati and New Orleans via Chattanooga, Birmingham and Meridian.

Augusta Special—Between New York and Augusta, Aiken, Columbia and Asheville via Washington.

Birmingham Special—Between Birmingham and New York via Atlanta and Washington.

New York, Chattanooga and New Orleans Limited—Between New Orleans and New York via Meridian, Birmingham, Chattanooga and Washington.

Cincinnati-New Orleans Limited—Between New Orleans and Cincinnati via Meridian, Birmingham and Chattanooga.

Carolina Special—Between Charleston and Cincinnati via Columbia, Asheville and Knoxville.

Kansas City-Florida Special—Between Kansas City and Jacksonville via Memphis, Birmingham and Atlanta.

R. H. DeBUTTS, Division Passenger Agent, WASHINGTON, D. C.

business. Banks pay the highest tax, 12,000 pesos, and agencies of foreign manufactures that do not have stocks for sale in

Chile are to pay 3,000 pesos. As an occupation tax the new Chilean law on its face is exceedingly complete.

The Public Service of Transportation

An Analysis of the Supreme Court's Decision on the Constitutionality of the Adamson Law

FOR brevity the eight-hour law, approved by the President both on September 3 and on September 5, was a model. It declared that in the contracts of employment for 300,000 odd train-service employees eight hours should be the measure of a day's pay, that for seven to ten months from January 1, 1917, the pay for eight hours should be no less than the pay then given for ten hours, and that a commission should observe the result and report to the President.

Terseness in this instance was not wholly successful. Both employees and railroads saw imperfections, and when the Supreme Court came to discuss the matter, on March 19, its comments ran to forty times the length of the law.

Technically, the court decided five to four about the points at issue between employers and employees but, also technically, these two parties had settled their differences out of court a few hours before. Accordingly, the court's decision dealt most directly with the rights of the public.

On this point the court was much more

nearly unanimous, standing six to two for the proposition that Congress has authority to protect the free and uninterrupted flow of interstate traffic against any combination of operatives, owners, or strangers; one justice preferred to reserve his opinion until an actual case arises. Acts which would destroy interstate commerce, disputes between employers and employees which threaten to leave the public helpless and to ruin the vast interests concerned in interstate traffic, a majority of the court said, can be prevented by the exercise of the complete power the Constitution reposes in Congress to regulate interstate commerce. Such a declaration comes near to being a new bill of rights for the public in its relation to its transportation system.

The court not only implied that Congress can compel railways and their employees to submit their differences to arbitration, and to abide by the results, but it called the law itself a direct form of compulsory arbitration. In effect, the court took the position that Congress could

have prevented the strikes of 1877, of 1893, and all the rest.

The responsibilities incident to the occupation of public carrier are by no means all on one side. When a railway engages in interstate commerce it subjects all of its property, no matter how vast, to a public interest. Society gets a title to continued operation and rightful conduct. It can even compel a railway to continue its services, cost and other obstacles to the contrary notwithstanding.

Two justices objected, however, that they could find no authority for Congress to commandeer the railroads, or the services of trainmen, and that in their belief, so far as enactments of Congress may go, a railway may discontinue its service at pleasure. The logic of reasoning they used was that obligation to continue service arises from charters, charters have been derived from the states, and hence Congress has no concern with the obligation—an argument which advocates of federal incorporation will not be slow to add to their quiver.

The men who enter the employment of a railway likewise assume responsibilities.

They undertake to have a part in a business charged with a public interest. If they do not exercise their private right to agree on wages, or to quit work in concert in such a way as to leave unimpaired the public right to uninterrupted service, they must submit to a controlling governmental right.

In this way the court arrived at its formal conclusion, that the eight-hour law is within the power of Congress.

The Nub of the Case It took the point of view that as the railways and the men had failed to exercise their private right to agree on terms of employment, Congress, representing the paramount public interest, could step in and say what the terms should be. Other points in the case are merely incidental to this conclusion.

The terms which Congress settled upon naturally came in for attention. The majority recognized that an eight-hour day as a work period beyond which men were not to be employed

was not in question, but only an eight-hour standard of work. Nevertheless, they based their position, that Congress can impose such a standard, upon earlier cases involving the law which prohibits a railway from keeping men on duty more than sixteen hours—a law which was upheld on grounds of safety for employees and public.

Apparently seven justices agreed that Congress could deal with either hours of work or the standard work-day. Two in-

Farm Folks Are Profiting by the High Cost of Living—Sell Them Your Goods—They Have the Money

¶ Farmers to-day are the prosperous people. They have more money than they ever had before.

¶ The High Cost of Living helps the farmer. Every time your pocketbook goes flat, because things to eat cost so much, the farmer's pocketbook swells up.

¶ To work with the High Cost of Living, instead of against it, sell your goods to country folks.

¶ Advertise in The Farm Journal, the world's biggest farm paper. It has guaranteed all its advertising for so long that its readers instinctively trust even the first get-acquainted message.

¶ Advertising in The Farm Journal will stimulate your dealers both in the country towns and in the cities. Every city store gets some country business, but wants more, for farm folks pay cash and buy quality products.

¶ By advertising in The Farm Journal, you give your dealers more help in selling more of your goods—you make their accounts more profitable to you without enlarging your organization, assuming new credit risks or needing more salesmen.

¶ Even if you have no country dealers at all, you will get a profitable share of country trade by advertising in The Farm Journal—statistics forecast it and experience proves it.

¶ Your advertising agency knows The Farm Journal and will prove to you that it is not only *the biggest farm paper*, but has done most to make advertising pay, *by making it believed*. Your agency can show you that The Farm Journal is highest-priced, that it concentrates 88.7% of its over-a-million circulation in the states where you are already doing most business and can most profitably expand—where there are most people, most dealers, most shipping and banking facilities. Your agency can show you, too, how best to utilize The Farm Journal's influence with dealers, salesmen and your distributors generally. His advice and our cooperation *will help you sell more goods*.

¶ Insure your future by having the country trade—war or peace, we have to eat, and, as long as we eat, *farmers will be well-to-do!*

The original of our beautiful oak tree trademark stands on a farm near South Bend, Indiana. There is one much like it at Andalusia Station, on the Pennsylvania Railroad, between Trenton and Philadelphia. We would be glad to hear of others.

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If you want a perfectly unbiased opinion on your country selling opportunities, ask us. We have no statistics, but we're observing and have travelled. Write a friendly letter; will answer it quite informally.

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Wonderful Scenery

The thrilling motor run over the **Old Apache Trail** is the crowning feature of the journey of scenic pleasures on the

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And other splendid trains

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You can enjoy this motor side trip over America's oldest highway, visiting the copper camps, prehistoric cliff-dwellings and the great Roosevelt Dam, at only slight additional cost. Through Pullman service in connection with the Sunset Limited between El Paso and Globe, starting point of the motor trip, on Sundays, Tuesdays and Fridays. Oil-burning locomotives—no dust, no smoke, no cinders

SOUTHERN PACIFIC LINES



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sisted, however, that the new law was misnamed in its title, since it did not prohibit employment for more than eight hours or allow any penalty for overtime. They held that the eight-hour provision was merely a part of a plan for fixing wages—a contention which the rest of the court did not deny.

Regarding the part of the law which de-

clared wages should for a period of months be the same for an eight-hour day as formerly for a longer day on most of the roads the court returned to its division of five to four. For the dissenting justices this was the crux of the case they were originally called upon to decide.

The majority held that Congress could pass a wage law, being able to fix a standard

of wages between railways and their employees quite as well as it could fix standards of rates, in order that roads and shippers might not haggle over their bargains. The other justices took varying points of view in opposition, including positions that this was not a regulation of interstate commerce, that it was an entirely different matter from regulating the hours of work, that it amounted to taking a sum of money legislatively and arbitrarily from one man and conferring it upon another, and hence that there was such a deprivation of property without due process of law as is prohibited by the Constitution.

That the eight-hour law had points of novelty perhaps all the justices may have agreed. Two of them declared that in progressive legislation enacted in thirty years by Congress and state legislatures for the regulation of common carriers they had found nothing like it.

The novelty extended to the decision. When it was made it had little direct importance for the railways and the men, but for a public wholly dependent upon a quarter of a million miles of railway it had great significance in making clear the possibilities of future legislation in support of the public right.

The Epic of Wool

(Continued from page 12)

would be especially true of Japan, which grows relatively little wool.

V.

"*Sheep—quiet, fond and few.*"

THE SHEEP is among our oldest inhabitants. Franciscan friars who were with the Spanish conquistadores when they came into what is now New Mexico in search of the fabled "cities of Cibola" brought the first ones and presented them to the Indians, who thus became our first shepherds. Sheep were landed at Jamestown on the very heels of the first settlers.

Early American colonists, who wore more wool, man to man, than we do, were as shiftless in the matter of growing enough to clothe themselves as we are. Real wolves of the wilderness and the figurative wolf of English opposition to American industries preyed upon the business. Before 1645, New England imported wool from Spain. In 1765 Lieutenant Governor Colden, of New York, complained that "all the wool in America is not sufficient to make stockings for the inhabitants," and in 1769 Franklin wrote that England believed that "tho' the men may be contented with homespun stuffs, the women will never get the better of their vanity and fondness for English modes and gewgaws." Wool growing was largely incidental to the

The English People Ate Bran and the Cattle Got the Whole Wheat

because England's Food Controller, in an honest endeavor to relieve the scarcity of bread, retained for human consumption the "thirds", a portion of the wheat fed to the cattle. He increased the bread supply three per cent, but made bran so scarce that the price shot up to \$85 a ton. Farmers found it more profitable to feed the whole wheat to their cattle than to sell it and buy bran.

The United States Will Make Similar or Worse Mistakes Unless—

it studies earnestly to profit by the blunders that have cost Europe so much blood and money. Now that we are in the Great War, it will be the business of THE NATION'S BUSINESS to tell the story of what Europe has done toward the integration and control of all supplies and industry. The first articles will appear in May.

Business problems that were serious in peace are now life and death matters. Every citizen's personal safety and finances are vitally affected by transportation, standardization of products, scientific distribution of food, and the development of men to handle the guns.

Government and business are more important to each other now than ever before. THE NATION'S BUSINESS consecrates itself to the task of bringing them into a complete and intelligent harmony that the war may be brought to a swift and victorious conclusion.

THE NATION'S BUSINESS

Riggs Building, Washington, D. C.

Character In Cravats

Cheney
Cravats

THAT subtle something that is so apparent to the eye, and yet so difficult to describe—cravat character—makes its presence felt in Cheney Cravats in a highly satisfactory degree. Satisfactory to the man who wears them and to the shop that sells them. The genuine are identified by the quality-mark "Cheney Silks" in the neckband. CHENEY BROTHERS Silk Manufacturers 4th Avenue and 18th Street, New York

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This bank is particularly well equipped to serve manufacturers, jobbers, wholesalers, and dealers located in States West of Pennsylvania to the Pacific Coast. We offer the facilities of a Chicago checking account with or without a line of credit. Our collection Department is a special feature of this service. We make a specialty of handling Bill of Lading collection items. Correspondence invited.

Union Trust Company
CHICAGO

One of Chicago's old conservative banks doing strictly a commercial business. Established 1869

LEPAGE'S
GLUE HANDY
TUBES
WHEN A NAIL WON'T DO 10¢

tonmut industry. At one period Virginia sheep were shorn only to cool them, but at another time we find the colony prohibiting the exportation of wool.

Wool was spun by the settlers' firesides, and before 1800 there were but a few straggling attempts to set up woolen mills. A great impetus was given to the industry by the war of 1812, however, and, despite periods of depression, expansion was rapid. Small water-driven mills, companion to the rural grist mill, dotted the banks of every stream, until in 1860 there were 1,700 of them, employing 60,000 operatives, and with a product of \$80,000,000 a year. The big factories of to-day, risen since 1865, are concentrated in the Eastern States north of Maryland, although small mills are scattered throughout every State of the Union. Something like 200,000 persons now earn a livelihood in our woolen industries, and capital of half a billion dollars is invested. The value of the output of the mills dropped from \$507,166,710 in 1909 to \$464,249,813 in 1914.

In 1884, when many of the 55,000,000 persons then living in the United States would have had to wrap themselves in sheets but for the 78,000,000 pounds of wool imported from abroad, there were the same number of sheep in the country as in 1915, when the population had grown to more than 100,000,000. We reached our high-water mark in 1903 with 64,000,000 sheep. By 1915 the number had dropped below 50,000,000, of which, it is estimated, 36,600,000 were of shearing age.

VI.

"Cut my cote after my cloth,"

WILL OUR new coats be cut from all-wool or shoddy, or shall we have to present an out-at-the-elbow and frayed-around-the-edges appearance by wearing our old clothes? If we cannot get one thing, why not take another? If fig-leaves had not been plentiful in the Garden, the Man and the Woman, looking anxiously into the lean days to come, would probably have made aprons of some other material. Why then should a decreasing wool supply knit our brows with anxiety?

The sheep need not fear that he will ever fail to find a market for all the wool he can produce, because the characteristics of wool fiber make it peculiarly useful in the temperate zones, where the climate and moral standards require the wearing of clothing. Wool prevents the escape of the heat of the body, keeps out the cold, and permits the moisture of perspiration to pass through.

Nature gave the sheep two coats—the wild ones still wear both—one of long hair and one of short. Centuries of cultivation have eliminated the long and converted the short into wool. Wool differs from hair in fineness, waved delicacy and a sheath of strong, rough-edged scales, which cause the fibers to "hook-on" when laid across one another. On some of the finer wools there are as many as 4,000 of these scales to the

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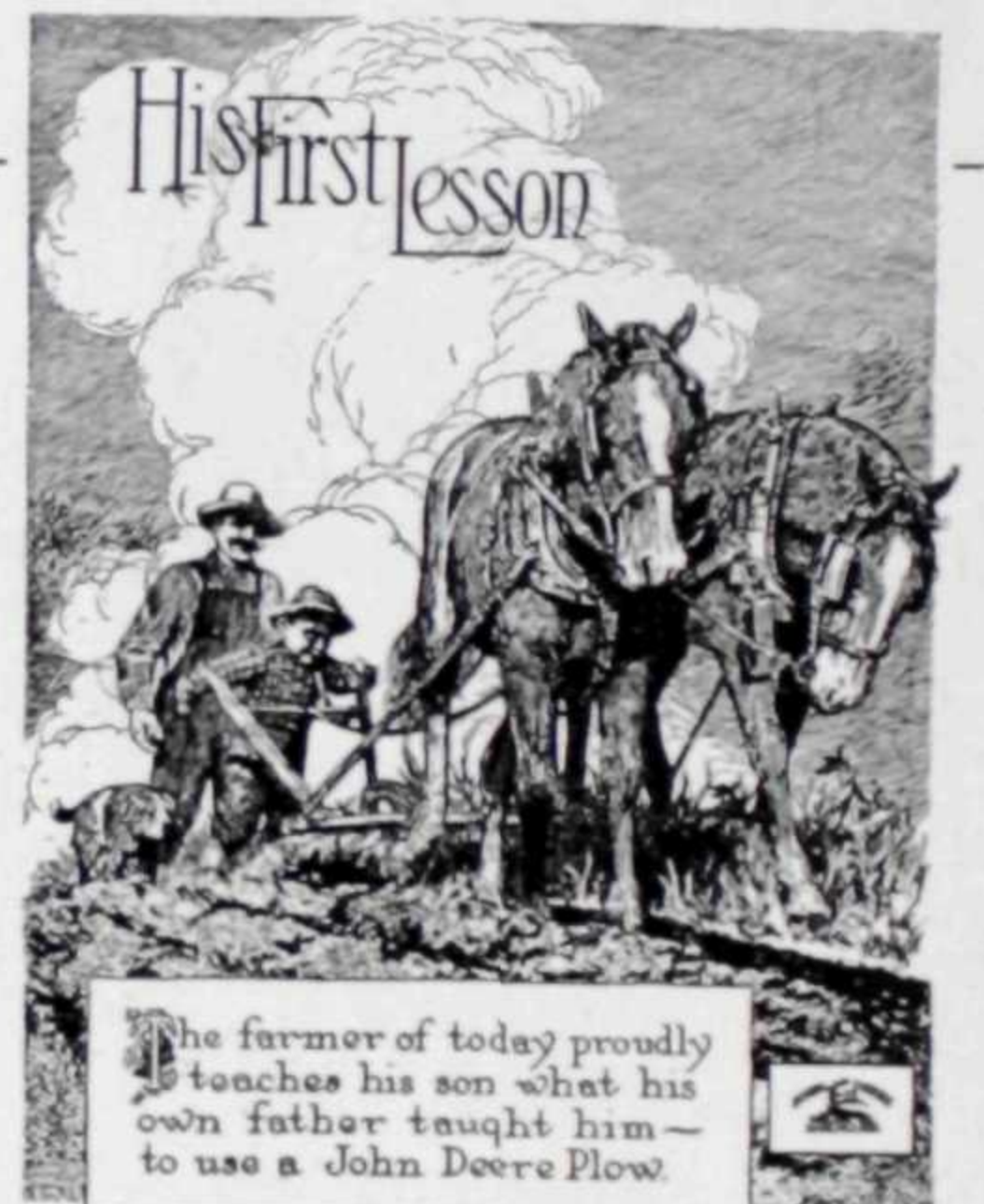
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ARGUMENT

(Advertisement written by F. D. Van Amburg)

Argument is words on foot—the art of reasoning out loud. That is, if you discuss and not cuss.

Argument is the open court to prejudice and practice.

It is often the best way to come to a conclusion, on the whole. It is talking one with another.

Argument, like an arrow from a crossbow, can have equal force with words, though drawn by a small child; but words are lisps as compared with common sense and every-day business practice.

Argument must have two sides, lest it be like the bird with one wing.

Three Federal Judges, fifteen Federal Courts, Twenty Supreme Courts, and many eminent jurists have decided that Trading Stamps are entitled to the protection of the Constitution of the United States.

But the argument I am trying to settle with myself is this:

Is it to the permanent advantage of a merchant to use
J. N. TRADING STAMPS

My candid opinion is, that a store should and a store should not use Trading Stamps. It all depends. I have never found a universal cure for anything.

When reliable, resourceful merchants frown on the Trading Stamp, I am bound to respect their views.

When successful stores, distinguished for their exceptional service, enthusiastically endorse the use of J. N. Trading Stamps, after years of experience, I am bound by the law of argument to consider the situation something like this:

The full weight of experience here seems to out-balance
the shortweight of prejudice; or I might more politely
say, the lack of practical or first-hand knowledge.

This does not imply that I have any corner on the wisdom of introducing Trading Stamps in a store; but it does suggest that, had Columbus listened to the non-believers this country would probably be an Indian reservation with clam shells for currency.

If I am logical or nearly correct it is an individual proposition such as most of us experience in business, that should be left with the individual to settle.

GEORGE B. CALDWELL, President
THE SPERRY & HUTCHINSON COMPANY

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world

inch. Cotton fibers can be laid parallel and twisted into thread like rope, but they will not mat like wool when laid across each other. Neither will most hairs, because their sheath is smooth. Wool gradually shades into hair, and the steps in a series from the finest merinos to the wild boar's coarse bristle would be indistinguishable.

Human intervention and differences in altitude, climate and feed have given sheep nearly as many varieties in color and physiognomy as men. There are long-leg sheep and short-leg sheep, sheep with manes, sheep with dewlaps; black sheep, pied sheep, chestnut-brown sheep. Every country boasts its own breeds. Sheep may have as many as eight horns or no horns at all. Persons in the Himalayas amuse themselves with a fighting sheep pretty much as our Cuban friends amuse themselves with fighting cocks. In many parts of Asia is found a sheep whose broad tail is esteemed as a delicacy on account of its great accumulation of fat, and to protect the tail from injury through dragging on the ground, it is often supported by a board on small wheels.

A list of the different kinds of wool resembles a page from an international gazetteer, with here and there a suggestion that it may be a catalogue of popular songs. In one book, something like 113 are mentioned. For customs purposes the United States classified wool according to the race and blood of the sheep from which it was shorn, causing our tariff to be known as the "blood" tariff. Wool varies in color, length, fineness and strength. The best clothing wools are those of merino blood, immediate or remote. Next in desirability are those grown on full-blood sheep of the English types, or on crossbreds, other than merino crosses, which show a perceptible trace of English blood. Then there is a heterogeneous group produced by inferior sheep in all parts of the world, very little of which is used to make clothing in the United States.

VII.

*"What riches give us let us then inquire;
Meat, fire and clothes."*

DESPITE NEW riches daily added to his store, many causes conspire to make it increasingly hard for man to keep himself properly clothed. History repeats itself over and over. The sheep always gives way before agriculture. In the new country, the settler thinks of the cow before the sheep, because he must have milk for his family. The sheep soon comes after, however, but as pioneer follows upon the heels of pioneer and acre after acre is laid under the plow, the sheep is pushed farther and farther into the background.

He is fighting a losing fight in Argentina. His immense army is retreating before the plow and the thresher, just as it retreated in the eastern United States, where the sheep lost his fight years ago, and as it is

retreating now in our Western States. The Argentine strongholds from which he is driven are being occupied by Italian immigrant farmers who prefer wheat to wool and mutton. The war has ravaged the flocks of most of Europe.

England, however, knowing well the value of her sheep, has even in the stress of this unheard-of conflict maintained, if not increased, her best breeding herds. If we show equal discernment and wisdom, the United States will witness a dramatic revival of the industry which will eclipse any period of prosperity which it has enjoyed in the past. Relief from the present shortage, desirable as that would be, is not our whole problem. We must put ourselves beyond the dangers attending an inadequate wool supply in times of national agony. We could produce the 300,000,000 pounds of wool a year that we import, and we ought to produce it, or most of it, in order to maintain the economic independence which is essential to the maintenance of political independence.

Business Takes a Trench

(Concluded from page 23.)

important bankers was enlisted. In Boston arrangements were made by the committee for relief by the banks.

It is improbable, however, that further action such as that taken in New York, Philadelphia and Boston will be necessary, since the Federal Reserve Board has decided that member banks may discount notes of contractors secured by vouchers showing amounts due from the government and that Reserve banks may rediscount them.

Although the committees have been in operation less than four weeks, five of them—St. Louis, New York, Omaha, Portland and Chicago—have already submitted reports outlining the scope of their activities and containing suggestions looking to the purchase of government supplies on a more economical basis. One of the suggestions which may have an important bearing upon future purchases is that an industrial inventory be taken covering a particular locality, with a view to locating sources of supply and ascertaining the probable amount that could be obtained from one.

Thus we see the part played in war by organized business. We see men forsaking their private affairs to attend to the needs of government. We see them foregoing not only excessive but even legitimate profits, in the public interest. We see business teaching, by example, the lesson of patriotism.

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For, Fatimas *are* comfortable. Not only comfortable *while* you smoke, but more than that, comfortable *after* you smoke—even though you may smoke the whole day through.

The Fatima Turkish blend is so carefully balanced that it has none of the after-effects of heavier, less skilfully blended tobaccos. That's why Fatimas are comfortable (hence, sensible)—as your first package will prove.

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